Study No. 92

BUILDING UP OF AN EFFICIENT MARKETING SYSTEM TO OBVIATE THE NEED FOR A LARGE SCALE STATE INTERVENTION IN MADHYA PRADESH

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CHAPTER I

INTRODUCTION

1.1 State and Market

The Agricultural Prices Commission (APC) was set up by the Government of India in 1965 on the recommendations of the Jha Committee in 1964 to advise the government on price policy with due regards to interests of the producers and consumers to provide incentives to the producers for adopting improved technology and to encourage the optimum utilization of land. The MSPs particularly, of paddy and wheat have been effectively implemented in the state of M.P. No farmer in the state has to travel very far to sell wheat and paddy. All the markets/ purchase centres are regulated. The Government of India announces the procurement prices for these crops on the recommendations of the Commission on Agricultural Costs and Prices (CACP) and the Government of India directs different Central and State procurement agencies to procure the produce at procurement price. There are no regional variations in the implementation of price policy in the state as these agencies procure the produce of Fair Average Quality (FAQ) throughout state in different markets at procurement prices for these crops. It was observed that almost all the produce of paddy and wheat brought by farmers in the markets during the procurement season is collected by the procurement agencies at MSPs. This itself means that MSP is being effectively implemented all over the state. Most of the farmers are aware of the MSPs for paddy and wheat. These two crops are time tested by the farmers and there are no other crops which can easily substitute these for economic and agronomical reasons. Farmers are experienced with the marketing of these crops and any change in these crops would amount to finding of new markets, assured prices and consider perishability, of the new crops.

1.2 Setting up the Problem

The present day agricultural marketing involves all the activities required in moving agricultural products from producers to the final consumers .It includes activities like assembling, grading, processing, transportation, handling, financing, risk bearing, wholesaling, retailing, etc.

The state intervention is an organized attempt to rearrange the mobilization and distribution of social resources via market place. These are of three types.

(i) Expanding range of direct mercantile activities, such as state trading in food grains and public distribution of foodgrains.

(ii) Financial interventions like commercial taxation, controls on use of formal credit for speculation on stocks which is an indirect intervention.

(iii)Regulated marketing.

The degree of these interventions may differ among states and also among the commodities .The agricultural price policy and marketing system in vogue includes the following instrument:

1. Fixation of minimum support prices
2. Procurement, buffer stocking and public distribution of cereals and fixation of central issue price for these.
3. Market intervention scheme in the case of some other farm products.
4. Levy on rice and sugar mills.
5. Encouragement to farmers' cooperatives.
6. Open market operations by public or cooperative agencies.
7. Providing subsidies for export of agricultural commodities.

Still, private trade dominates in marketing of most of agricultural commodities in most of the states. The system of marketing differs from region to region. In the case of wheat, the procurement is done from farmers in the market, while in the case of rice, it is largely through levy on millers in some states and direct purchase from farmers in other states. A combination of both these methods is also functioning in some states. In food deficit states, occasional intervention is needed when there is a bumper harvest. In surplus states, there has been a great pressure on the state to procure whatever paddy and wheat comes to the market. This has been the situation in Haryana and Punjab. It is important to mention that there is no compulsion for farmers to sell their produce to government agencies, except in the case of the Maharashtra Cotton Monopoly Procurement Scheme. Even in the latter case, the State Government is trying to shirk its responsibility. But there are formal or informal restrictions on movements, storage and trade of certain agricultural commodities, which must be reviewed. In view of accumulated surplus of foodgrains in the country, the level of minimum support prices (MSP) fixed by the government for rice and wheat appeared to be high during recent past as market prices of these commodities have been ruling lower than the MSP.

As a result, there has been pressure on the public procurement agencies to procure these grains at MSP, which these agencies have not been able to comply in many parts of the country. In the case of rice and wheat, the farm harvest prices ruled lower than the MSPs during the last 3-4 years, even in some relatively agriculturally less developed states where procurement operations were not carried out by FCI, and where the state machinery was not capable to come to the rescue of the farmers. On the other hand, MSPs fixed in the case of many other crops have been much lower than their ruling market prices in the past in most of the years. But in case the market price of one of these crops fell below the MSP due to bumper harvest, the government was not able to the come to rescue of the farmers. This has happened in certain years in the case of coarse cereals. There is need to develop an efficient marketing system.

Marketing efficiency denotes the effectiveness with which the structure of marketing performs the desired function of moving the farm products from producers to the final consumers. It encompasses "Technical Efficiency" and "Economic Efficiency", of marketing. The efficiency in physical handling of the products, which is a matter of procedure, technique and scale of operation, is known as technical efficiency. Improvements in methods of transportation, storage and handling would reduce wastage and prevent drop in quality. "Economic Efficiency" ensures that physical savings created through technical efficiency reaches both producers and consumers in the form of reduction of costs and exploitative profits. This is best ensured if the market is closer to perfect competition. Two broad approaches are adopted to measure agricultural marketing efficiency.

These are:

1. The analysis of marketing margins.
2. The analysis of the working of the markets delineating their structure, conduct and performance in order to explore the sources of the inefficiency in the system.

An efficient marketing system has following characteristics

1. There should be fair trading practices and no restrictions on movement, storage and marketing of commodities.
2. Necessary market information and facilities (infrastructure) should be available.
3. Existence of reasonable prices for both producers and consumers.
4. The traders' margin should be low.

5. Integration of internal markets with the world markets.
6. Adequate credit facility to help farmers to avoid distress sale.

It is also desirable to study levy on commodities like rice and sugar. Possibility of developing future markets in commodities being traded in bulk be explored. Regulated markets were established. The purpose for which the regulated markets were established has not been fully served. The restrictive legal provisions of these markets did not allow the development of competitive market structure and therefore, legal reforms in respect of these regulated markets are necessary opines GOI, 2001.

At present there is a large scale state intervention in foodgrains market, particularly in rice and wheat. A large amount of money is being used for procurement, buffer stocks operations and food subsidies. A stage has been reached when there is need for reduction of government involvement. However it can not be totally removed as the involvement has resulted in providing stable & incentive prices to farmers by way of fixing MSPs. Consumers are also able to obtain agricultural commodities at reasonable prices and poor are fed.

The main purpose of agricultural price policy is to manage the food deficit in the economy. With procured grains, stocks were created and foodgrains distributed through PDS. The objective is also to minimize imports. Even with the adoption of policy of liberalization and globalization not much foodgrains could be exported as the cost of storage was very high than the international prices. There is need for a change in marketing system to provide signals to farmers to change their cropping pattern. A healthy marketing system needs to be built so that state intervention gets reduced.

1.3 The Objectives

The specific objectives of the study are as follows.

1. To examine the prevailing system of marketing of important agricultural commodities in the state of Madhya Pradesh.
2. To examine the role of government and non government agencies in procurement/ purchase, storage and marketing of different commodities.
3. To examine deficiencies in factors impacting market efficiency, such as physical infrastructure, marker intelligence and trade practices (crops/crop group wise) in Madhya Pradesh and suggest measures to improve them.

4. To suggest measures to improve marketing efficiency.

1.4 Methodology

Since the study involves collection of secondary and primary data and discussion with the farmers, government officials and knowledgeable persons, the sample needs to be systematic so that the results and conclusions arrived represent the cross section of farmers and others. The coordinator of the study suggested the sample design which has been followed by us. The details of sample are given below.

1.4.1 Selection of Crops

Two crops, namely, paddy and wheat were selected as these were the most important cereals of the state from the point of view of area, production and marketing.

1.4.2 Selection of Districts

For two crops of paddy and wheat a district each was selected based on the highest area, production and yield. Accordingly Balaghat district was selected for paddy and Indore district was selected for wheat.

1.4.3 Selection of Blocks and Farmers

In the two districts of Balaghat and Indore two blocks each were selected. These blocks were selected on the basis of area, production of the respective crop and also their importance with regard to marketing. Thus in Balaghat district Balaghat and Waraseoni blocks were selected. Again, the mandies of these town were Selected for data on marketing. In Indore district Indore and Sanver blocks and the mandies located at these block headquarters were selected. In Balaghat district five processing units were selected formed the sample.

At the last stage of sampling the farmers had to be selected. As per the instructions of Coordinator of the study three villages in each of the two blocks of two districts were selected. Thus a total number of six villages were selected in each of the districts. In each village 10 farmers were selected so that the sample for a district comprised 60 farmers. Thus the total sample for the study was 120 farmers. For the selection of farmers in a village farmers were grouped into five groups according to size of holdings. From each size group 2 farmers were selected to have 10 farmers per village (Table 1.1 and 1.2).

Table 1.1 Sample selection of farmers in selected villages of Balaghat district

Village/ Category	Balaghat block			Waraseoni block		
	Rawadbandi	Jarera	Kumhari	Jhalibada	Ram Payly	Mehdi Bada
Marginal Up to 1.0 ha	**2**	**2**	**2**	**2**	**2**	**2**
Small 1.01 to 2.00ha	**2**	**2**	**2**	**2**	**2**	**2**
Semi-medium 2.01-4.0 ha	**2**	**2**	**2**	**2**	**2**	**2**
Medium 4.01- 6.00 ha	**2**	**2**	**2**	**2**	**2**	**2**
Large 6.01 ha and above	**2**	**2**	**2**	**2**	**2**	**2**
Total	**10**	**10**	**10**	**10**	**10**	**10**

Table 1.2 Sample selection of farmers in selected villages of Indore district

Villages/ Category	Indore Block			Sanver Block		
	Jamburdi Hapsi	Simalya Chau	Burana Khedi	Chandrawati Ganj	Nagpur	Pot lod
Marginal Up to 1.0 ha	**2**	**2**	**2**	**2**	**2**	**2**
Small 1.01 to 2.00ha	**2**	**2**	**2**	**2**	**2**	**2**
Semi-medium 2.01-4.0 ha	**2**	**2**	**2**	**2**	**2**	**2**
Medium 4.01- 6.00 ha	**2**	**2**	**2**	**2**	**2**	**2**
Large 6.01 ha & above	**2**	**2**	**2**	**2**	**2**	**2**
Total	**10**	**10**	**10**	**10**	**10**	**10**

1.4.4 Reference Year

For secondary data collection the reference years were 1980 onwards. For primary data the reference year was 2001-2002. Several visits were made to Bhopal, Balaghat and Indore for the collection of secondary data and discussions with the government officials. The primary data from the farmers of Balaghat district was collected in March, 2003. The same for Indore district was collected in April, 2003.

1.4.5 Chapter Scheme

The report comprises seven chapters. The chapter- I gives a brief introduction of the topic, objectives and the methodological frame work of the study.

In chapter II, we have discussed "Production, Marketing and Marketed Surplus of Paddy and Wheat in the State and Selected Districts".

In chapter III, we have discussed about agro economic characteristics of the selected districts.

In chapter IV, we have discussed about socio- economic characteristics of the sample farmers. A detailed analysis of the market structure of paddy and wheat has been done in chapter V.

Chapter VI gives some observations and policy implications.

Chapter VII gives summary and conclusions.

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CHAPTER - II

PRODUCTION, MARKETING AND MARKETED SURPLUS OF PADDY AND WHEAT IN THE STATE AND SELECTED DISTRICTS

2.1 Market structure for Agricultural Commodities in the State

Markets for agricultural commodities are mainly of two types.

i) Regulated Markets

ii) Unregulated Markets

2.1.1 Regulated Markets

There is a network of regulated agricultural markets in the state. These are statutory bodies established by the Agricultural Produce Market Acts passed by the State Government. The regulated markets are administered at the state level by the Directorate of Agricultural Marketing. There are 300 mandis, 293 sub mandies and 2,166 weekly markets in the state. There are four classes of mandies viz. I, II, III and IV. There were 32 mandies (10.67 per cent) under category I, 30 (10 per cent) under category II, 104 (32.67 per cent) under category III and 134 (44.66 per cent) under category IV.

These are governed by the Madhya Pradesh Krishi Upaj Mandi Act, 1972 implemented in 1973. The main objectives of the Act were :

1. to benefit the sellers by competitive prices
2. to control the correct weighment, and,
3. to control the cash payment to the sellers

The transactions were done by mandi workers and, therefore, the expenditure was less. It was compulsory that the seller got the payment on the same day. If it was deferred he was entitled to get surcharge between 1 to 5 per cent on the delay of each day. If the delay exceeded 5 days the license of the purchaser was withdrawn. The sold goods could be taken out of mandi only when payment to the seller was made. The buyer had to pay 1 per cent commission to mandi.

Each mandi had a committee constituted of elected members. If not, an Officer-in-Charge looked after the work of mandi. Besides sales and purchases of agricultural commodities mandis were authorised to sell fertilisers since rabi, 1993.

Mandis in Selected Districts

Balaghat district had 7 mandies of which 2 were III class and the rest 5, IV class mandis. All the seven mandis sold the fertilisers. There were 4 sub mandis and 9 weekly markets in the district.

Indore district had four mandis. Of these one each was of I class and II class and the remaining two mandis were categorised as III class. All the four mandis sold fertilisers. There were four sub mandis and 16 weekly markets in the district (Table 2.1).

Table 2.1 Categories of mandis and number of sub mandis and weekly markets, selected districts, Madhya Pradesh

Selected district	Class of mandis					Sub mandis	Weekly markets
	I	II	III	IV	TOTAL		
Balaghat	--	--	02	05	07	04	09
Indore	01	01	02	--	04	04	16
Total	01	01	04	05	11	08	25

Source : Mandi Board Bhopal

2.1.2 Un regulated Markets

While regulated markets included mandis and sub mandis, unregulated markets included weekly markets and smaller retail outlets, where sale and purchase transactions occurred without having any control whatsoever of the government authorities. Occasional checks of taxing authorities, quality control authorities concerned with correct weighment and measurement took place. But the basic objective of keeping the control on the sales and purchases, price fixation and giving the due advantage of sale proceeds to both seller and buyer, thereby to the ultimate consumer, was not kept in view.

2.1.3 Efficiency of Regulated and Unregulated Markets

2.1.3.1 Regulated Markets

The regulated markets were administered by market committees representing both producers and traders. Only licensed traders, commission agents were allowed to operate in the premise of the market. The law fixed their commissions and other charges. The sale was carried out by open auction method by announcing the details of commodity such as quality, grade, etc. and by letting the price determined by mutual agreement by producer on one hand and the buyers on the other. The other objective was to achieve stability in prices. Of course, there would be fluctuations in agricultural prices from one season to another and

from one year to another. To restrict the fluctuations in the prices it was suggested that every regulated market should have a warehouse of its own or that of the Warehousing Corporation or that of Marketing Cooperative. Adequate warehousing should also be available in the market yard or close to it. Another important point was regarding the market intelligence. Every market committee should exhibit the minimum price announced by the government, the price prevailing in the previous week and the price prevailed a day before. All these measures were meant to increase the efficiency of regulated markets by reducing the cost of marketing, allowing the producer the maximum possible price and access to warehousing facilities.

2.1.3.2 Unregulated Markets

As the nomenclature suggested there was no control over the transactions in the unregulated markets. Prices were fixed arbitrarily and malpractice prevailed to the disadvantage of the producer. Since there were no registered or licensed commission agents, small traders and retailers also operated. There were no strict rules regarding weights and measures.

2.2 State Interventions in Marketing

The state interventions are of two types:

(I) Expanding range of direct mercantile activities, such as state trading in foodgrains and agro-industrial raw materials and public distribution of foodgrains.

(II) Regulated marketing which is an indirect intervention seeking changes in the structure of exchange and production through control of behavior in the market place. It is noted that the state intervention in marketing is for 13 crops. These are :

i)	Paddy	v)	Wheat	ix)	Soybean
ii)	Jowar	vi)	Tur	x)	Groundnut
iii)	Bajra	vii)	Gram	xi)	Sesamum
iv)	Maize	viii)	Moong	xii)	Linseed
				xiii)	Mustard

Of these paddy and wheat are most important crops from the points of view of area, production, marketed surplus etc. Moreover all the three procuring agencies namely FCI, MARKFED and Civil Supplies Development Corporation deal in these two crops.

2.3 Administration of Markets in the State

Farmers produce is purchased by the representatives of the District Central Cooperative Marketing Societies in Krishi Upaj Mandis where open auction system is practiced. Mandis function as places or centres for purchase and sale and provide facilities to both producers and purchasers, like, correct weighment, drinking water, open/covered space/sheds for auction, etc. It is also seen that purchases are made not below he MSPs and payments to the producers are made immediately, preferably on the same day. If the purchaser does not make payment in reasonable period of time he is required to pay interest to producer @ 5%. If he fails to do that his license to purchase in the mandi is cancelled. For providing various facilities mandis charge from purchaser 2.00 per cent of the amount of produce purchased. In addition the mandis charged annual charges from wholesalers, processors, weighmen, etc.

2.3.1 Quality Control

The quality of the produce purchased by the District Central Cooperative Marketing Societies has to be of FAQ (Fair Average Quality). The quality checking is done by the representatives of the societies. For their guidance and for the guidance of persons at the State Warehousing Corporation a sample of product of FAQ is supplied. The produce to be procured should not be below the FAQ. The Societies should make purchases from farmers only. In this regard there is a contract signed between the Societies on the one hand and M.P. State Civil Supplies Corporation, Marketing Federation and Food Corporation of India on the other.

For checking the quality control the State Warehousing Corporation has trained staff which checks the quality of grains for-

a) Variety
b) Extent of breakage of grains
c) Admixture of other grains
d) Humidity
e) Admixture of impurities like stones, soil particles, etc.

In addition to the staff of SWC, 3 staff members of the procurement agencies assist in the quality control. However, the Societies do not have trained staff members to check the quality control. In the case of procurement of wheat the maximum percentage of acceptable impurities is as fallows.

S.No.	Particulars	Maximum Percentage Admissible
1.	Outside elements	0.75
2.	Other foodgrains	3.00
3.	Broken grains	3.00
4.	Partly broken grains	6.00
5.	Shrunk & broken grains	8.00

Humidity upto 12% is admissible. Deduction in value is made for humidity between 12 to 14 per cent. Product having humidity above 14 per cent is rejected. The produce to be accepted should not have impurities and humidity above the levels mentioned.

2.3.2 Transportation

The transportation of the bags from the collection centres to the godowns prescribed by the M.P. State Civil Supplies Corporation, M.P. State Marketing Federation or Food Corporation of India is the responsibility of respective agencies. For this tenders are invited from transporters for one year on per quintal/per km. basis.

While depositing the produce at the godowns of the procuring agencies quality and quantity are checked by the representatives of the procuring agencies and the marketing societies. All doubts in this regard are to be cleared before the produce is deposited in the godowns.

2.3.3 Payments

On the deposition of the produce by the District Central Cooperative Marketing Societies in the godowns of the agencies receipt is taken from the respective agency in regard to quantity deposited and its value. The society also maintains a register in which the details of purchases from farmers are entered such as name of the farmer, foodgrain purchased, quantity purchased and value of produce.

If the society has cash in hand it can make the payment to the farmers on the same day. If not, it issues a chit to the farmer mentioning name of the farmer, the foodgrain

purchased, the quantity of produce purchased and its value. The societies are allowed to make advance payment to the tune of Rs.5 lakhs to the farmers.

The society also submits the details of quantity purchased, its value and dates to the procuring agency. The procuring agency, on the basis of these details issues cheques of State Bank of India favouring the District Central Cooperative Bank. The cheque would be equal to the amount of the procured produce in favour of the District Central Cooperative Marketing Society for payment to the farmers. On the receipt of the cheques from the procuring agencies the Marketing Society makes the payment to the farmers by cheques. This procedure normally requires 5 to 10 days. However, in the peak season when the purchases are enormous and there is a shortage of money with the societies and the procuring agencies the delays in payment to farmers do occur and result in resentment among farmers in general and political circles in particular. The district level agencies make advance payment to the societies to the tune of Rs.50 lakhs. The district level procuring agencies get the payment cheques from the State level offices from the Reserve Bank of India, Bhopal.

2.3.4. Transportation from the District Godowns

The Food Corporation of India and the M.P. State Marketing Federation transfer the produce from the district level godowns to the destinations as ordered by the state level officers. The District Level Civil Supplies Corporation Office, on the order of proper authority sends the foodgrains to-

1. Public Distribution System, and,
2. The State Govt. Departments for supply to the beneficiaries of the Rural Employment Schemes such as IRDP, Rojgar Yojana, Mid-Day Meal Scheme, families below poverty line and families above poverty line, etc.

2.4 Characteristics of Crops in the State

2.4.1 Cropping pattern

The data on cropping pattern were collected for the reference years 1980-81, 1990-91 and 2000-2001. The cropping pattern of the state was food crops oriented as this group of crops occupied largest percentage area of 81.32 in 1980-81, 71.91 in 1990-91 and 62.33 in 2000-2001. It is also noted that the percentage of area under this crop group declined where as the percentage of area under non-food crops increased from 18.68 in 1980-81 to 28.09 in

1990-91 and 37.67 in 2000-2001. Among the food crops foodgrains were most important and among the foodgrains wheat (18.45 per cent), gram (11.03 per cent) and paddy (9.49 per cent) were most important. Among non-food crops soybean was the most important crop occupying 24.95 per cent of the area. It is also noted that the percentage area under this oil seed increased from 1.50 per cent in 1980-81 to 11.85 per cent in 1990-91 and 24.95 per cent in 2000-2001.

2.4.2 Cropping Pattern in Selected Districts

It may be noted that since the selection of districts was based on the dominance of either paddy or wheat the cropping patterns of the selected districts were distinctly different from each other. While paddy occupied as high as 74.13 per cent of the gross cropped area in Balaghat district, it was negligible in Indore district. On the other hand while wheat occupied 12.70 per cent of gross cropped area in Indore district the percentage of this crop in Balaghat district was only 4.21. In Indore district gram was of some importance but it was not so in Balaghat district. The most important point of difference in the cropping pattern was soybean. While Indore district had 53.06 per cent of the gross cropped area under soybean Balaghat district had only 0.06 per cent of area under soybean. Another point of difference was that in Balaghat district slightly more than 90 per cent of the area was under food crops. In Indore district the non-food crops dominated and the percentage area under these crops was as high as 74.27 (Table 2.2).

2.4.3 Irrigation

The main sources of irrigation in Madhya Pradesh were wells and contributed 64.11 per cent to the irrigated area of the state. The next important sources were canals, which contributed 19.54 per cent to the irrigated area. Other sources like stop dams and pumps fitted on rivers and nalas shared 14.29 per cent area. During the two early reference years the proportionate importance of the sources did not change. While the percentage of area under wells and other sources increased from one reference year to the next, the percentage of area under canals and tanks decreased from one reference year to the subsequent reference year.

In Balaghat district the most important sources of irrigation were canals and formed 60.50 per cent of the total irrigated area. Tanks were the next important sources and the contribution made by these was 21.99 per cent. The third important sources were wells.

Table 2.2 Cropping pattern in selected districts, Madhya Pradesh

(Figures in percentage)

Crop	Indore			Balaghat			Madhya Pradesh		
	1980-81	1990-91	2000-2001	1980-81	1990-91	2000-2001	1980-81	1990-91	2000-2001
Paddy	0.20	0.02	Neg.	64.54	64.37	74.13	9.81	8.59	9.49
Wheat	24.49	21.41	12.70	5.15	6.48	4.21	20.48	20.64	18.45
Jowar	17.88	9.21	0.11	0.26	0.16	0.03	14.68	9.02	3.48
Maize	3.70	2.75	2.81	1.26	1.28	1.38	4.37	4.30	4.64
Other cereals & millets	0.06	--	0.10	4.77	4.47	4.11	7.96	5.71	4.12
Total cereals	46.33	33.39	15.72	75.98	76.76	83.85	57.31	48.27	40.07
Gram	15.55	14.39	4.24	1.37	2.26	1.43	10.58	12.49	11.03
Tur	5.86	1.36	0.16	0.57	0.68	0.86	3.00	2.21	1.79
Pea	0.49	0.15	--	0.03	0.08	--	0.62	--	--
Other pulses	3067	0.43	0.43	10.5	8.97	6.31	8.06	6.97	7.10
Total pulses	25.57	16.33	4.83	12.47	11.99	8.61	22.26	21.67	19.86
Total foodgrains	71.90	49.72	20.57	88.45	88.75	92.47	79.57	69.94	59.93
Sugarcane	0.92	0.43	0.06	0.26	0.30	0.56	0.41	0.21	0.42
Total fruits	0.23	0.18	0.10	0.11	0.08	0.07	0.22	0.26	0.29
Total vegetables	2.58	2.63	4.43	0.60	0.84	0.84	0.47	0.50	0.73
Total spices	0.82	0.43	0.52	0.31	0.35	0.30	0.64	1.00	0.96
Total fruits, vegetables & spices	3.63	3.24	5.05	1.02	1.27	1.22	1.33	1.76	1.98
Other food crops	0.40	00	0.05	0.38	0.05	0.01	0.01	00	00
Total Food Crops	76.85	53.77	25.73	90.11	90.90	94.24	81.32	71.91	62.33
Groundnut	0.65	0.10	0.02	00	0.03	0.04	1.71	1.56	1.18
Soybean	10.41	37.74	53.06	00	0.05	0.06	1.50	11.85	24.95
Linseed	2.95	0.58	0.04	8.75	7.65	4.16	2.13	1.76	0.91
Other oilseeds	00	0.03	Neg	1.03	1.26	1.39	3.72	5.11	3.86
Total oilseeds	14.01	38.45	53.14	9.78	8.99	5.66	9.06	20.29	30.91
Cotton	0.16	0.05	21.07	00	00	00	3.74	3.35	2.74
Other fibres	0.07	00	0.66	0.06	0.08	0.06	00	0.07	0.04
Total fibres	0.23	0.05	21.13	0.06	0.08	0.06	3.74	3.42	2.79
Other non-food crops	8.91	7.73	00	0.05	0.03	0.04	5.88	4.38	3.97
Total non food crops	23.15	46.23	74.27	9.89	9.10	5.76	18.68	28.09	37.67
All crops	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00

These formed 14.25 per cent of the irrigated area. It was noted that the percentage of area irrigated by canals did not vary much during the three reference years. While the percentage of area irrigated by tanks decreased during the reference years that of wells and other sources increased from one reference year to another.

In Indore district tubewells were the major sources of irrigation and formed 65.27 per cent of irrigated area. Wells were the second important sources contributing 31.66 per cent to the irrigated area. It was noted that the percentage of area under tubewells continued to be around 65 whereas the percentage under wells, tanks, and other sources declined from one reference year to the subsequent reference year. Thus it was observed that while in Balaghat district canals and tanks were the most important sources in Indore district tubewells and wells were the most important sources (Table 2.3).

Table 2.3 Land use classification in selected districts, Madhya Pradesh

(Figures in percentage)

Crop	Indore			Balaghat			Madhya Pradesh		
	1980-81	1990-91	2000-2001	1980-81	1990-91	2000-2001	1980-81	1990-91	2000-2001
1. Forest	13.62	13.62	13.62	52.90	53.74	54.81	26.15	26.59	27.81
2 . Not available for cultivation	7.49	8.20	10.21	6.26	5.43	6.04	11.56	11.11	10.53
A) Land put to non agricultural uses	6.79	7.44	8.83	4.51	5.03	5.00	5.25	5.66	6.14
B) Barren and uncultivable land	0.70	0.76	1.38	1.75	0.40	1.04	6.30	5.45	4.39
3. Other uncultivable land excluding fallow land	8.46	7.52	8.23	4.92	5.19	3.38	6.76	6.16	5.22
A) Permanent pasture and grazing land	8.44	7.49	8.20	4.19	5.17	3.30	6.52	6.08	5.15
B) Land under misc. tree crops and groves	0.02	0.03	0.03	0.73	0.02	0.08	0.24	0.08	0.07
4 Cultivable waste land	2.14	1.20	00	3.16	2.69	3.05	5.00	4.12	3.90
5 Fallow land	1.10	1.36	3.26	3.37	2.98	3.08	4.79	3.65	4.53
A) Current fallow	0.58	0.73	2.27	2.00	1.26	1.40	2.08	1.71	2.66
B) Old fallow	0.52	0.63	0.99	1.57	1.72	1.68	2.71	1.94	1.87
6 Net area sown	67.19	68.10	64.68	29.19	29.97	29.64	45.74	48.37	48.01
Geographical area	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00

2.4.4 Area, Production and Productivity of selected crops

In Madhya Pradesh the area under paddy in 2000-2001 was 1,708 thousand hectares. In 1980-81it was 1,559.70 and in 1990-91 it was 1,556.00 thousand hectares. Thus the area in the last reference year increased by about 150 thousand hectares. The production of paddy in 2000-2001 was 982.00 thousand tonnes. It was 975.28 thousand tonnes in 1980-81 and 1,435.00 thousand tonnes in 1990-91. One clear reason for highest production in 1990-91 was the highest yield in that year.

Balaghat which is mainly paddy growing district witnessed increasing area under paddy from 1980-81 to 1990-91and further to 2000-2001. The production of paddy on the other hand declined from one reference year to the next reference year and stood at 209.40 thousand tonnes in 2000-2001. The reason for decreasing production inspite of increasing area was clearly due to decreasing yield from one reference to another. The yield was 1,478 kg. per hectare in 1980-81, 1,324 kg. per hectare in 1990-91 and 894 kg. per hectare in 2000-2001. Wheat was not an important crop in Balaghat district. Both area and production did not show any trend during the three reference years. The yield of wheat in the district declined

from 852 kg. per hectare in 1980-81 to 847 kg. per hectare in 1990-91 and further to 729 kg. per hectare in 2000-2001. It was also noted that while the yields of paddy in the district were higher than that of the state, the yields of wheat were far lower than the state level in all the three reference years.

Indore district was famous for wheat and it was observed that the yields of wheat in the district in all the three reference years were higher than the state average. On the other hand the yields of paddy in Indore district were far lower than the state average as well as the another selected district of Balaghat (Table 2.4).

Table 2.4 Area, Production and Yield of Paddy & Wheat in selected districts, Madhya Pradesh

Crops	Indore			Balaghat			Madhya Pradesh		
	1980-81	1990-91	2000-2001	1980-81	1990-91	2000-2001	1980-81	1990-91	2000-2001
Paddy									
Area (000ha)	0.60	0.10	0.03	225.70	236.30	246.56	1,559.70	1,556.00	1,708.00
Production (000 tones)	0.30	0.10	Neg	316.90	297.00	209.40	975.28	1,435.00	982.00
Yield (Kg/ha)	494	770	548	1478	1324	894	881	922	605
Wheat									
Area (000ha)	74.80	84.80	50.06	18.00	23.80	14.00	3,257.40	3,738.00	3,331.00
Production (000 tones)	97.90	218.50	87.30	14.70	22.70	9.80	4,861.90	5,742.00	4,869.00
Yield (Kg/ha)	1,363	2,683	1,797	852	847	729	974	1,536	1,535

2.4.5 Rainfall

The total rainfall of Madhya Pradesh was 1,142.6 mm. Like many other areas of the country the state received rainfall from the south west monsoon in the months of June to September. The rainfall in these four months constituted 89.42 per cent of the total rainfall received. The monsoon season extended a bit in October when only 3.29 per cent of rainfall occurred. In the remaining months the rainfall received was negligible.

Balaghat district came under the high rainfall area of the state. The total precipitation in the district was 1,623.2 mm., higher than the state average (1,142.6 mm) and very significantly higher than the other district of Indore (980.0 mm). Here also nearly 90 per cent of the rainfall occurred in the four months of June to September.

Indore district had a comparatively lower total rainfall of 980.0 mm. In this district also a little more than 90 per cent (91.08) of the rainfall occurred in the four monsoon months of June to September (Table 2.5).

Table 2.5 Normal rainfall, selected districts and the state

(Unit- mm)

Month	Balaghat	% to total	Indore	% to total	Madhya Pradesh	% to total
1. June	211.7	13.04	149.3	15.23	140.7	12.31
2. July	557.9	34.37	311.9	31.83	369.5	32.33
3. August	445.2	27.43	239.5	24.44	324.3	28.38
4. September	232.6	14.32	191.9	19.58	187.5	16.40
5. October	62.7	3.86	36.3	3.70	37.6	3.29
6. November	13.3	0.82	20.8	2.12	15.9	1.39
7. December	5.9	0.36	5.9	0.60	6.6	0.58
8. January	17.8	1.09	5.6	0.57	16.0	1.40
9. February	29.6	1.82	2.2	0.22	15.1	1.32
10. March	18.5	1.14	2.5	0.25	10.3	0.90
11. April	28.0	1.72	14.1	1.43	19.1	1.67
12. May	-	-	-	-	-	-
Total	1,623.2	100.00	980.00	100.00	1,142.6	100.00

2.4.6 Production, Market Arrivals and Procurement

The total production of paddy in Madhya Pradesh in the year 2001-02 was 1,664 thousand tonnes. It was 1,750 thousand tonnes in 1999-2000 and 982 thousand tonnes in 2000-2001. As regards arrivals it was noted that in 2001-2002 the arrivals were 634 thousand tonnes. These were 448 thousand tonnes in 1999-2000 and 423 thousand tonnes in 2000-2001. It was also noted that of the total production 38.00 per cent arrived in the markets in 2001-2002. In 2000-2001 the percentage was 43.00 and in 1999-2000 it was only 26.00. Not entire quantity arriving in the market was procured by the government agencies. In 2001-2002, 42.00 per cent of the arrivals were procured. In 2000-2001 the percentage was lower (28.00) and was least in (18.00) 1999-2000. Thus it will be noted that the proportion of quantity procured to quantity arrived increased from year to year.

In the case of wheat the total production was 8,687 thousand tonnes 1999-2000. It suddenly decreased to 4,869 thousand tonnes in 2000-2001. In 2001-2002, however, it increased to 5,362 thousand tonnes. It was noted that the percentage of quantity arrived to production was 27.00 in 1999-2000. It shot up to 57.00 per cent in 2000-2001. However it decreased to 37.00 per cent in 2001-2002. The procurement was 24.00 per cent of the arrivals in 1999-2000. In the two subsequent years the percentage went down to 13.00 and 16.00 per cent respectively. It may therefore be said that progress of procurement has been much better in the case of paddy than wheat in three reference years (Table 2.6).

Table 2.6 Production, market arrivals and procurement of paddy and wheat in Madhya Pradesh

(Unit - Thousand tonnes)

Year	Paddy					Wheat				
	Production	Arrivals	Procurements	% of Arrival s to production	%of Procurement to arrivals	Production	Arrivals	Procurement	% of arrivals to Production	% of Procurement to arrivals
1999-2000	1,750	448	80.00	26.00	18.00	8,687	2,314	544	27.00	24.00
2000-2001	982	423	119	43.00	28.00	4,869	2,775	351	57.00	13.00
2001-2002	1,664	634	265	38.00	42.00	5,362	1,998	315	37.00	16.00

The district of Balaghat was selected for paddy and therefore the data on production, arrivals and procurement was analysed for paddy only. Similarly Indore district was selected for wheat crop and therefore the production, arrivals etc. were noted for wheat in that district.

In Balaghat district the production of paddy was 333.3 thousand tonnes 1999-2000. It dropped to 209.4 thousand tonnes in 2000-2001. However it again increased to 358.2 thousand tonnes in 2001-2002. Both the arrivals and the procurement quantities increased from year to year. The arrivals in 2001-2002 were 149.10 thousand tonnes and procurement was 52.39 thousand tonnes. There was no trend as regards percentage of arrivals to production. However the percentage of procurement to arrivals increased from 10.81 in 1999-2000 to 22.09 in 2000-2001 and further to 35.14 in 2001-2002. Thus the procurement of paddy was quite satisfactory in the district.

In Indore district the production of wheat was 283.1 thousand tonnes 1999-2000. In the year 2000-2001 the production suddenly decreased to 87.3 thousand tonnes. In the last reference year, however, the production recovered and was 115.9 thousand tonnes. There was no relationship between the quantities of arrivals and production. This is presumed to be due to the fact that in Indore district mandi wheat in good quantity is received from adjoining districts. Therefore in 2000-2001 the arrivals were more (173.50 thousand tonnes) than the production (87.3 thousand tonnes). Another notable feature was that wheat was not procured in Indore district mandis in both the years 2000-2001 and 2001-2002. This might be due to the fact that there was enough wheat quantity stored in the godown of the district compelling the officials not to procure any wheat in the two reference years (Table 2.7).

Table 2.7 Production, market arrivals and procurement of paddy and wheat in Balaghat and Indore districts

(Unit - Thousand tonnes)

District	Balaghat					Indore				
Year	Paddy					Wheat				
	Production	Arrivals	Procurements	% of arrivals to production	%of Procurement to arrivals	Production	Arrivals	Procurement	% of Arrivals to Production	% of Procurement to arrivals
1999-2000	333.3	109.30	11.81	32.79	10.81	283.1	203.90	46.74	72.02	22.92
2000-2001	209.4	113.80	25.14	54.35	22.09	87.3	173.50	--	198.74	--
2001-2002	358.2	149.10	52.39	41.62	35.14	115.9	82.30	--	71.01	--

2.4.7 Movements of Farm Harvest, Wholesale & Minimum Support Prices

2.4.7.1 Paddy

The MSP of paddy in the state in 1985-1986 was Rs.142 per quintal. It increased from year to year and was Rs.490 per quintal in 1999-2000. Thus the index (1985-86=100) increased to 345.07. The index of FHP increased about equal to MSP. But the index of WSP was lower than MSP. It was noted that farm harvest prices of paddy were much higher than MSPs in all the reference years. It can be said that the impact of MSP on FHP was positive and quite high in most of the years. As regards relationship between MSPs and wholesale prices it was noted that in all the years wholesale prices of paddy were higher than MSPs. (Table 2.8).

Table 2.8 Farm harvest, wholesale and minimum support prices of paddy, Madhya Pradesh

Year	M.S.P. Rs./qtl.	Index	Farm Harvest Price (Rs. / qtl.)	Index	Whole Sale Price Rs./ qtl.)	Index
1985-86	142	100.00	298.82	100.00	173	100.00
1986-87	146	102.82	314.45	105.23	148	85.00
1987-88	150	105.63	445.15	148.96	254	146.82
1988-89	160	112.68	483.22	161.71	256	147.97
1989-90	185	130.28	496.22	166.06	253	146.24
1990-91	205	144.37	588.93	197.08	328	189.59
1991-92	230	161.97	700.21	234.32	323	186.70
1992-93	270	190.14	532.17	178.09	308	178.03
1993-94	310	218.31	613.73	205.38	348	201.15
1994-95	340	239.44	670.39	224.34	407	235.26
1995-96	360	253.52	693.00	231.91	378	218.49
1996-97	380	267.61	806.90	270.03	416	240.46
1997-98	415	292.25	864.20	289.20	444	256.64
1998-99	470	3300	954.9	319.32	454	262.42
1999-2000	490	345.07	1,112.44	372.28	--	--

2.4.7.2 Wheat

Wheat is an important rabi cereal of the State. The MSP of the crop has increased from Rs.157 per quintal in 1985-1986 to Rs. 550 per quintal in 1999-2000. The index increased (1985-1986= 100) to 350.32 in 1999-2000. Both index of farm harvest and wholesale prices recorded a gradual increase during the reference years with fluctuations in between. However, the increase was not only lower than the index of MSP but also showed a decline in between from one year to another. As regards relationship between MSP and wholesale prices it was noted that in all the years wholesale prices of wheat were higher than MSPs (Table 2.9).

Table 2.9 Farm harvest, wholesale and minimum support prices of wheat, Madhya Pradesh

Year	M.S.P. Rs./qtl.	Index	Farm Harvest Price (Rs. / qtl.)	Index	Whole Sale Price Rs./ qtl.)	Index
1985-86	157	100.00	200.49	100.00	215	100.00
1986-87	162	103.18	200.23	99.87	229	106.51
1987-88	166	105.73	229.70	114.57	250	116.27
1988-89	173	110.19	282.18	140.74	293	136.28
1989-90	183	116.56	259.78	129.57	358	166.51
1990-91	215	139.94	289.38	144.34	377	175.34
1991-92	225	143.31	340.43	169.80	369	171.62
1992-93	275	175.16	419.93	209.45	433	201.39
1993-94	330	210.19	419.38	209.18	414	192.55
1994-95	350	222.93	422.29	210.62	422	196.28
1995-96	360	229.30	462.47	230.67	441	205.11
1996-97	380	242.04	599.36	298.94	609	283.25
1997-98	475	302.55	530.61	264.65	556	258.60
1998-99	510	363.06	598.37	298.45	672	312.55
1999-2000	550	350.32	699.91	349.10	614	285.58

2.4.8 Roads and Transport Facilities

The total road length in Madhya Pradesh in 1998 was 67,284.2 km.It increased slightly and was 67,743.6 km. in 1999. The road length per hundred square kilometers of area increased from 21.8 km to 22.0 km. The pucca road length per hundred square kilometers increased from 18.4 km. to 18.5 km. The number of registered vehicles per thousand population was 40 in 1998 and increased to 44 in 1999.

As regards roads it was noted that in general roads were better and had more coverage in Indore district than Balaghat district. Thus the road length per hundred square kilometer area in 1998 was 38.4 km. as against 30.5 km. in Balaghat district. In Indore district surface road length per 100 sq.km. was 34.1 as compared to 23.4 km. in Balaghat district. In 1999 the figures were 33.1 and 23.5 km. respectively for Indore and Balaghat districts. Similar picture emerged with respect to registered vehicles.

The number of registered vehicles per thousand population in Indore district in 1998 was 196 as against only 16 in Balaghat district. In 1999 also the number of vehicles per thousand population in Indore district was 208 as compared to only 18 for Balaghat district. (Table 2.10).

Table 2.10 Roads and registered vehicle

Districts	Total road length (k.m.)		Road length per 100 sq. km. of area		Surface road length (k.m.)		Surface road length per 100 sq. k.m.		Registered vehicles		Registered vehicles per thousand population	
	1998	1999	1998	1999	1998	1999	1998	1999	1998	1999	1998	1999
Balaghat	2,813.9	2,824.1	30.5	30.6	2,157.6	2,167.8	23.4	23.5	24,787	28,514	16	18
Indore	1,496.9	1,472.6	38.4	37.8	1,327.9	1,303.6	34.1	33.1	4,39,783	4,84,213	196	208
M.P.	67,284.2	67,743.6	21.8	22.0	56,745.6	57,205.1	18.4	18.5	24,05,443	26,75,799	40	44

2.4.9 Storage Facilities

The total storage capacity in Madhya Pradesh on 30.6.2002 was 9,96,445 tonnes. The capacity included that of Food Corporation of India's own godowns, those of State Warehousing Corporation, Central Warehousing Corporation, etc. Of all the godowns the capacity was highest (33.85 per cent) of FCI own godowns. Another 20.33 per cent of the capacity was of open space with built up plinth. Central Warehousing Corporation godowns had 15.23 per cent capacity. In Balaghat district the highest capacity of 84.04 per cent was of FCI owned godowns. The Central Warehousing Corporation godowns constituted 8.28 per cent and that of State Warehousing Corporation's godowns 7.68 per cent.

In the case of Indore district the Central Warehousing Corporation's godowns constituted 56.99 per cent storage capacity and the remaining 43.01 per cent capacity was of Private Parties godowns (Table 2.11).

Table 2.11 Statement showing district wise storage capacity in selected districts and Madhya Pradesh as on 30.06.2002

(Unit – Tonnes)

District	Crop	FCI	SWC	CWC	Private Godowns	State Godowns	Plinth	Open	Total
Indore	Wheat	--	--	26,500	20,000	--	--	--	46,500
				(56.99)	(43.01)				(100.00)
Balaghat	Paddy	20,310	1855	2000	--	--	--	--	24,165
		(84.04)	(7.68)	(8.28)					(100.00)
M.P.	--	3,37,320	48,375	1,51,720	95,283	86,607	2,02,500	74,600	9,96,445
		(33.85)	(4.85)	(15.23)	(9.56)	(8.69)	(20.33)	(7.49)	(100.00)

Source : Food Corporation of India Kharif and Rabi plans 2002-2003

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CHAPTER-III

SALIENT AGRO- ECONOMIC CHARACTERISTICS OF SELECTED DISTRICTS TIME SERIES ANALYSIS

This chapter deals with the indicators in the field of agro-economics for the selected two districts. The main limitation of this chapter is the non availability of all the data asked by the coordinator and whatever data was available was not for the continuous time series. It was intended that the data on time series should be given for atleast ten years. But for the reasons given above this was not possible for data on all indicators. Therefore the available data was used for drawing the conclusions which we think would present a fairly appropriate picture about the indicators.

3.1 Storage Facilities

Data on storage facilities was available for the ten year period from 1983-84 to 1992-93. It was noted that in general the storage capacity of all the four kinds of storages increased during the reference period. In Balaghat district in 1992-93 the total capacity was 79,783 tonnes. This capacity comprised mainly of FCI godowns which contributed 55.80 per cent, the SWC godowns contributed 22.23 per cent of the total capacity and appex godowns, 14.41 per cent.

In Indore district the total capacity in 1992-93 was 2,49,020 tonnes. Of this SWC godowns formed 46.41 per cent capacity and CWC godown formed 29.12 per cent. The FCI godowns formed 16.84 per cent and apex godowns the remaining 7.63 per cent (Table 3.1).

Table 3.1 Capacity of godowns, selected districts

(Unit – Tonnes)

Year	Balaghat					Indore				
	SWC	CWC	FCI	APEX	Total	SWC	CWC	FCI	APEX	Total
1983-84	3,891	18,950	38,030	6,500	67,371	15,557	12,300	40,200	5,000	73,057
1984-85	5,256	4,375	40,280	6,500	56,411	17,934	54,620	48,700	5,000	1,26,254
1985-86	5,799	4,375	47,372	7,500	65,046	19,462	54,878	54,605	11,000	1,39,945
1986-87	6,569	7,375	45,107	9,500	68,551	19,620	56,908	55,355	11,000	1,42,883
1987-88	5,780	7,100	44,517	11,500	68,907	17,851	56,908	42,230	12,000	1,28,989
1988-89	5,155	11,569	44,517	10,500	71,741	13,329	56,908	39,230	12,000	1,21,467
1989-90	6,042	6,033	44,517	7,500	64,062	14,307	69,563	39,230	12,000	1,35,100
1990-91	5,525	6,033	44,517	11,500	67,575	15,236	88,425	66,230	18,000	1,87,891
1991-92	8,776	6,033	44,517	12,500	71,826	22,044	77,525	40,230	18,000	1,57,799
1992-93	17,733	6,033	44,517	11,500	79,783	1,15,565	72,525	41,930	19,000	2,49,020
	(22.23)	(7.56)	(55.80)	(14.41)	(100.00)	(46.41)	(29.12)	(16.84)	(7.63)	(100.00)

3.2 Roads and Transport Facilities

The total road length in Balaghat district in the year 1985-86 was 2,236.3 km. The road length increased gradually and was 2,747.0 in 1994-95. In terms of road length per hundred sq.km. of area the length came to 24.23 km. in 1985-86 increasing gradually to 29.76 km. in 1994-95. The length of pucca roads in 1985-86 was 1,745.6 km. increasing to 2,035.0 km. in 1994-95. The road length in terms of hundred sq.km. of area of the district was 18.92 km. in 1985-86 and 22.05 km. in 1994-95. Similarly the number of registered vehicles per thousand population increased from 3 in 1985-86 to 11 in 1994-95 (Table 3.2).

Table 3.2 Roads and registered vehicles, Balaghat district

(Unit – km.)

Year	Total road length (K.m.)	Road length per 100 sq.km. of area	Surface road length (K.m.)	Surface road length per 100 sq.km.	Registered Vehicles	Registered vehicles per '000 population
1985-86	2,236.3	24.23	1,745.6	18.92	3,914	03
1986-87	2,293.2	24.85	1,788.0	19.37	4,474	04
1987-88	2,383.4	25.82	1,866.4	20.12	5,233	04
1988-89	2,458.2	26.63	1,910.6	20.17	6,907	05
1989-90	2,525.5	27.36	1,947.0	21.10	8,596	07
1990-91	2,557.3	27.71	1,956.0	21.19	10,399	08
1991-92	2,605.3	28.23	1,988.4	21.54	11,770	08
1992-93	2,684.5	29.08	2,020.7	21.89	12,776	09
1993-94	2,704.8	29.30	2,035.0	22.05	13,793	10
1994-95	2,747.0	29.76	2,035.0	22.05	15,427	11

In Indore district the network of roads both kuchcha and pucca was far better than Balaghat district. In 1985-86 the road length per 100 sq. km. of area was 29.78 km. and increased to 36.33 km. in 1994-95. In the case of pucca roads the length per 100 sq. km. was 25.53 in 1985-86 increasing to 31.89 km. in 1994-95. The number of registered vehicles in Indore district was very significantly higher than Balaghat district. The number of vehicles per 1000 population increased from 63 in 1985-86 to 140 in 1994-95 (Table 3.3)

Table 3.3 Roads and registered vehicles, Indore district

(Unit – km.)

Year	Total road length (km.)	Road length per 100 sq. km. of area	Surface road length (km.)	Surface road length per 100 sq. km.	Registered Vehicles	Registered vehicles per '000 population
1985-86	1,160.8	29.78	995.4	25.53	1,03,625	63
1986-87	1,160.8	29.78	1,052.1	26.99	1,20,728	71
1987-88	1,178.0	30.22	1,064.8	27.32	1,41,575	81
1988-89	1,309.5	33.60	1,125.4	28.86	1,68,521	93
1989-90	1,345.0	34.50	1158.9	29.73	1,91,583	103
1990-91	1,387.6	35.61	1199.3	30.76	2,13,874	116
1991-92	1,400.8	35.94	1227.3	31.48	2,37,618	126
1992-93	1,400.8	35.94	1227.3	31.48	2,52,931	130
1993-94	1,406.2	36.07	1232.7	31.63	2,66,805	133
1994-95	1,416.2	36.33	1242.7	31.89	2,88,725	140

3.3 Cropping Pattern

In Balaghat district paddy was the most important crop occupying 73.09 per cent of the cropped area in the year 2001-2002. It is observed that the percentage of area under paddy, in general, increased from year to year. On the other hand the percentage of area under wheat generally decreased during the last ten years. The percentage of area under pulses also declined generally. Among oilseeds only linseed was important but the percentage of area under this crop showed a declining trend. Other crops were not of any significant importance (Table 3.4).

Table 3.4 Cropping pattern in Balaghat District

(Figures in percentages)

Crop	1992-93	1993-94	1994-95	1995-96	1996-97	1997-98	1998-99	1999-2000	2000-2001	2001-2002
Paddy	67.46	65.35	64.91	65.22	67.75	72.24	71.34	70.55	74.13	73.09
Wheat	5.43	6.11	7.11	6.75	5.73	3.88	4.45	5.24	4.21	4.67
Jowar	0.11	0.08	0.08	0.08	0.08	0.09	0.06	0.03	0.02	0.04
Maize	1.28	1.25	1.22	1.23	1.42	1.36	1.31	1.30	1.38	1.31
Other cereals & millets	4.63	4.27	4.08	4.02	4.06	4.24	4.1	3.96	4.11	3.92
Total cereals	78.91	77.06	77.40	77.30	79.04	81.81	81.26	81.08	83.85	83.03
Gram	1.96	2.14	2.24	2.14	1.90	1.39	1.48	1.60	1.43	1.60
Tur	0.74	0.76	0 .77	0.78	0.99	0.89	0.87	0.75	0.87	0.86
Pea	0.11	0.14	0.16	0.16	0.14	-	0.17	-	-	-
Other pulses	8.62	8.73	8.44	8.95	7.81	6.81	7.08	7.06	6.31	6.23
Total pulses	11.43	11.77	11.61	12.03	10.84	9.09	9.60	9.41	8.61	8.69
Total foodgrains	90.34	88.83	89.01	89.33	89.52	90.90	90.86	90.49	92.46	91.72
Sugarcane	0.31	0.35	0.37	0.13	0.45	0.53	0.38	0.62	0.56	0.53
Total fruits	0.09	0.08	0.11	0.08	0.09	0.09	0.08	0.07	0.08	0.06
Total vegetables	0.82	0.70	0.77	0.83	0.85	0.80	0.75	0.85	0.84	0.86
Total spices	0.37	0.38	0.39	0.38	0.37	0.36	0.32	0.32	0.18	0.30
Total fruits, vegetables & spices	1.28	1.16	1.27	1.29	1.31	1.25	1.15	1.24	1.10	1.22
Other food crops	0.31	0.14	0.08	0.04	0.47	-	0.22	-	0.12	-
Total Food Crops	92.24	90.48	90.73	91.15	91.75	92.68	92.61	92.35	94.24	93.47
Groundnut	0.03	0.03	0.03	0.03	0.03	0.03	0.01	0.04	0.04	0.04
Soybean	0.08	0.11	0.08	0.08	0.09	0.09	0.09	0.08	0.06	0.05
Linseed	6.25	7.93	7.69	7.29	6.44	5.63	5.70	6.01	4.16	4.96
Other oilseeds	1.29	1.32	1.31	1.37	1.55	1.42	1.44	1.40	1.40	1.37
Total oilseeds	7.65	9.39	9.11	8.77	8.11	7.17	7.24	7.53	5.66	6.43
Cotton	-	-	-	-	-	-	-	-	-	-
Other fibres	0.11	0.05	0.03	0.08	0.09	0.09	0.08	0.08	0.08	0.07
Total fibres	0.11	0.05	0.03	0.08	0.09	0.09	0.08	0.08	0.08	0.07
Other non-food crops	-	0.08	0.13	-	0.05	0.06	0.07	0.04	0.02	0.03
Total non food crops	7.76	9.52	9.27	8.85	8.25	7.32	7.39	7.65	5.76	6.53
All crops	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00

In Indore district wheat was the most important cereal occupying 20.92 per cent of the gross cropped area in 2001-2002. It was however, noted that the percentage of area under this crop slightly declined since the year 1993-94 with many fluctuations in between. The other important crop was gram and its percentage in the gross cropped area stood at 10.45 in the year 2001-2002. There was a slight decline in the percentage since 1996-97. Soybean was the chief commercial oilseed and occupied 54.99 per cent of the gross cropped area in 2001-2002. It was also noted that the percentage of this crop declined abruptly from 2000-2001 (63.00 per cent) to 54.99 per cent in 2001-2002. This might be due to lower price offered for the crop due to lower exports (Table 3.5).

Table 3.5 Cropping pattern in Indore District

(Figures in percentages)

Crop	1992-93	1993-94	1994-95	1995-96	1996-97	1997-98	1998-99	1999-2000	2000-2001	2001-2002
Paddy	0.03	0.05	-	-	0.02	-	-	-	-	-
Wheat	15.35	23.40	23.30	22.99	25.38	25.83	27.15	28.35	15.25	20.92
Jowar	4.58	3.54	1.89	1.43	0.90	0.56	0.29	0.02	0.14	0.26
Maize	3.72	2.82	2.43	2.22	2.35	2.43	2.05	2.27	3.34	1.92
Other cereals & millets	-	-	0.05	0.02	-	0.02	-	0.05	0.01	0.01
Total cereals	23.68	29.81	27.67	26.66	28.65	28.84	29.49	30.69	18.74	23.11
Gram	12.94	12.87	13.10	12.39	12.63	11.36	10.05	9.41	5.04	10.45
Tur	0.76	0.57	0.33	0.31	0.32	0.18	0.16	0.11	0.19	0.15
Pea	0.08	0.10	0.12	0.12	0.11	-	0.07	-	-	-
Other pulses	0.35	0.33	0.28	0.28	0.34	0.36	0.33	0.37	0.51	0.48
Total pulses	14.13	13.87	13.83	13.10	13.40	11.90	10.61	9.89	5.74	11.08
Total foodgrains	37.81	43.68	41.50	39.76	42.05	40.76	40.10	40.58	24.48	34.19
Sugarcane	0.33	0.10	0.07	0.10	0.11	0.09	0.07	0.05	0.07	0.02
Total fruits	0.14	0.12	0.14	0.19	0.18	0.13	0.04	0.11	0.12	0.17
Total vegetables	2.52	2.94	3.33	3.70	4.06	4.51	5.02	5.41	5.26	3.63
Total spices	0.33	0.42	0.57	0.75	0.72	0.83	0.74	0.09	0.62	0.61
Total fruits, vegetables & spices	2.99	3.48	4.04	4.64	4.96	5.47	5.80	5.61	6.00	4.41
Other food crops	0.11	0.10	0.07	0.05	-	-	0.04	0.73	-	-
Total Food Crops	41.24	47.36	45.68	44.55	47.12	46.30	46.01	46.93	30.55	38.62
Groundnut	0.08	0.07	0.05	0.05	0.05	0.04	0.02	0.03	0.03	0.04
Soybean	50.49	45.25	46.48	48.20	45.86	47.04	47.75	47.15	63.00	54.99
Linseed	0.27	0.38	0.38	0.33	0.34	0.36	0.29	0.22	0.04	0.36
Other oilseeds	0.24	0.10	0.07	-	0.02	0.02	-	0.02	0.01	0.01
Total oilseeds	51.08	45.80	46.98	48.58	46.27	47.46	48.06	47.42	63.09	55.40
Cotton	0.03	-	-	0.02	-	0.02	-	-	-	-
Other fibres	-	0.02	-	-	-	-	-	-	-	-
Total fibres	0.03	0.02	-	0.02	-	0.02	-	-	-	-
Other non-food crops	7.65	6.82	7.34	6.67	6.61	6.22	5.93	5.65	6.36	5.98
Total non food crops	58.76	52.64	54.32	55.45	52.88	53.70	53.99	53.07	69.45	61.38
All crops	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00

3.4 Irrigation

Paddy crop in Madhya Pradesh gets irrigation from canals and tanks. It was noted that in Balaghat district canals irrigated as high as 57.32 per cent of the irrigated area. Tanks were the second important sources and contributed 23.01 per cent of total irrigated area. Wells were comparatively less important sources and the contribution to irrigated area was 15.28 per cent. It was also noted that the percentage of irrigated area by canals increased generally from 1992-93 to 1996-97. Thereafter it slightly declined till the last reference year 2002-2003. The percentage of irrigated area by tanks did not show any trend as such. On the other hand the percentage of irrigated area by wells increased from year to year i.e. from 1992-93 to 2002-2003 (Table 3.6).

Table 3.6 Area irrigated by different source in Balaghat District

(Figure in Percentages)

Source	1992-93	1993-94	1994-95	1995-96	1996-97	1997-98	1998-99	1999-2000	2000-2001	2001-2002	2002-2003
Canals	59.57	59.02	64.83	60.78	63.14	62.33	60.00	59.84	61.00	59.20	57.32
Tanks	27.09	26.56	22.55	24.57	22.63	22.76	23.29	21.78	21.35	21.29	23.01
Tubewells	--	--	0.57	0.33	0.17	--	0.08	0.08	--	0.24	0.24
Wells	9.86	10.98	8.33	10.66	11.23	11.18	12.35	13.06	14.37	15.24	15.28
Other Sources	3.48	3.44	3.72	3.66	2.83	3.73	4.28	5.24	3.28	4.03	4.15
Total (Net Irrigated Area)	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

In Indore district tubewells were the most important sources of irrigation and contributed as high as 82.96 per cent of the irrigated area of the district. The percentage of irrigation by tubewells generally increased from year to year i.e.1992-93 to 2002-2003 with small fluctuations between the beginning and end of the reference years. Open wells formed 7.30 per cent of the total irrigated area. However the percentage of area under these sources declined gradually from year to year. Other sources such as stop dams and pumps fitted on rivers, nalas etc. gained importance in the percentage of irrigated area since 1999-2000 (Table 3.7).

Table 3.7 Area irrigated by different source in Indore District

(Figure in Percentages)

Source	1992-93	1993-94	1994-95	1995-96	1996-97	1997-98	1998-99	1999-2000	2000-2001	2001-2002	2002-2003
Canals	1.29	1.17	1.45	1.40	2.50	2.46	2.50	2.58	--	2.51	3.32
Tanks	0.90	2.11	2.01	3.24	3.33	3.85	3.50	2.28	0.14	1.00	0.11
Tubewells	77.16	68.21	72.73	73.58	80.90	80.20	84.08	79.41	65.32	82.69	82.96
Wells	16.13	25.70	20.35	18.10	11.60	11.91	9.05	13.27	31.62	9.03	7.30
Other Sources	4.52	2.81	3.45	3.68	1.67	1.58	0.87	2.46	2.92	4.77	6.31
Total (Net Irrigated Area)	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

3.5 Production, Market Arrivals and Procurement of Selected Commodities in Selected Districts

The data on the above items were available from the year 1997-98 to 2001-2002. Even in these data some gaps existed.

The production of paddy in Balaghat district in 1997-98 was 257.7 thousand tonnes. It generally increased from year to year with some fluctuations so that in 2001-2002 it was 358.2 thousand tonnes. Arrivals also generally increased from year to year and were 87.9 thousand tonnes in 1997-98 and 149.1 thousand tonnes in 2001-2002. The figures for procurement were not available for the first two years of the reference period. In 1999-2000 the procurement was 11.81 thousand tonnes and increased from year to year to be 52.39 thousand tonnes in 2001-2002. Since both production and arrivals did not show any definite relation, the percentage of arrivals to production fluctuated from year to year. However the percentage of procurement to arrivals increased from year to year and was 10.81 in 1999-2000 and 35.14 in 2001-2002.

In Indore district the production of wheat and arrivals of wheat did not show any trend during the reference years. Therefore there was no trend in percentage of arrivals to production. The data for procurement was very scanty, as a matter of fact no procurement was done in the two years of 2000-2001 and 2001-2002. Therefore no relation could be established between the percentage of procurement to arrivals (Table 3.8).

Table 3.8 Production, market arrivals and procurement of paddy and wheat in selected districts

(Unit - Thousand tonnes)

Year	Paddy (Balaghat)					Wheat (Indore)				
	Production	Arrivals	Procurement	% of Arrivals to production	%of Procurement to Arrivals	Production	Arrivals	Procurement	% of Arrivals to Production	% of Procurement to Arrivals
1997-98	257.7	87.9	N.A.	34.11	--	342.2	196.1	N.A.	71.52	--
1998-99	345.0	111.7	N.A.	32.38	--	274.2	201.3	N.A.	58.36	--
1999-2000	333.3	109.3	11.81	32.79	10.81	283.1	203.9	46.74	72.02	22.92
2000-2001	209.4	113.8	25.14	54.35	22.09	87.3	173.5	--	198.74	--
2001-2002	358.2	149.1	52.39	41.62	35.14	115.9	82.3	--	71.01	--

3.6 Quantity of Selected Commodities Sold in Selected Markets

It may be mentioned that the quantity sold means the quantity arrived in the selected mandis. In Balaghat district the selected mandis were Balaghat and Waraseoni. In Indore district the selected mandis were Indore and Sanver. The data on arrivals was for three continuous years from 1999-2000, 2000-2001 and 2001-2002.

In Balaghat district Waraseoni mandi was more important with respect to quantities of arrivals. In Indore district Indore mandi was much more important than Sanver mandi as far as arrivals of wheat was concerned. In Balaghat district the total arrivals increased from 6,83,760 quintals in 1999-2000 to 8,73,009 quintals in 2001-2002. In the case of Indore district the arrivals of wheat were 14,75,220 quintals in 1999-2000 and increased to 15,24,781 quintals in 2000-2001. In the last reference year however, the quantity of arrivals of wheat decreased to 5,49,233 quintals (Table 3.9).

Table 3.9 Arrivals of paddy and wheat in selected mandis of selected districts

(Unit –Quintals)

Year	Paddy (Balaghat)			Wheat (Indore)		
	Balaghat	Waraseoni	Total	Indore	Sanwer	Total
1999-2000	2,63,924	4,23,436	6,83,760	10,73,387	4,01,833	14,75,220
2000-2001	3,25,258	4,31,852	7,57,110	12,01,643	3,23,138	15,24,781
2001-2002	2,98,243	5,74,766	8,73,009	,5,38,669	1,05,64	5,49,233

3.7 Mandis in Selected Districts

As mentioned earlier Balaghat and Indore districts were selected for paddy and wheat crops respectively. A brief description of the four mandis viz. Waraseoni and Balaghat of Balaghat district and Indore and Sanver of Indore district is given below.

3.7.1 Waraseoni Mandi

This is a class III mandi and the coverage is 78 villages of Waraseoni tehsil. The estimated production in the mandi catchment area is 5,17,000 quintals. Of this the marketed surplus is estimated to be 2,20,000 quintals. Production from outside the mandi catchment area is estimated to be 60,000 quintals. Thus mandi is estimated to be receiving 2,80,000 quintals of paddy. The area under paddy in the 78 villages is 25,560 hectares. The number of traders registered in the mandi is 119 and the number of auctioneers is 114. The capacity of storage in and around Waraseoni mandi is 110 tonnes and the number of processors attached to the mandi is 46.

3.7.2 Balaghat Mandi

Balaghat mandi is the category III mandi of the district and was established on 05.04.1969. The number of traders in the mandi was 23 and the number of rice mills in the mandi area was 9. Rice is also processed to prepare poha. The poha-mills in the mandi area were 35. The areas included under the mandi were Balaghat, Kirnapur and Lanji tehsils. Four sub-mandis are also associated with Balaghat mandi. These are Changotola, Lamta, Kirnapur and Lanji. The number of villages under the mandi was 262 and area sown under the mandi area was 81,489 hectares. The marketable surplus in the mandi area was 4,43,605 quintals. The produce coming to the mandi from the area other than mandi was 40,000 quintals. Thus the estimated production received in the mandi was 4,83,605 quintals. The storage capacity of government agency was 15,000 tonnes.

3.7.3 Indore Mandi

This is one of the few a class I mandis of the state. The area of operation of the mandi is Indore tehsil. Besides Indore main mandi located at Laxmibainagar, there are two sub-mandis attached to this mandi. The first sub mandi is located in Sanyogitaganj and the other sub-mandi for fruits and vegetables is located at Tejpur Gadbadi. The number of villages in Indore tehsil is 176. In addition farmers from other tehsils bring their produce to Indore mandi. The number of such villages is 178. It was also noted that farmers from nearby districts of Dewas, Ujjain, Dhar, Khandwa and Harda bring their produce to Indore mandi. The villages of these districts number 282. As regards mandi for fruits and vegetables the produce of other states is received in the Indore fruits and vegetables mandi. The number of wholesalers in the mandi is 1,117, the number of pucca adhatiyas is 454 and the number of processors was 310. The number of warehouses is 13.

3.7.4 Sanver Mandi

It is a class III mandi of Indore district and was established on 28.12.1955. The area of operation is sanver tehsil having 149 villages. Besides main mandi of Sanver sub-mandi Chandravatiganj and sub-mandi at Manglya are attached to the sanver mandi.

3.8 Arrivals of Paddy and Wheat and Prices thereof

Data on arrivals and prices were noted for mandis in the selected districts. In Balaghat district the data were collected for two mandis of Waraseoni and Balaghat for paddy. In

Indore district data for wheat were noted for Indore and Sanver mandis. The data were collected for three years 1999-2000, 2000-2001 and 2001-2002.

In Waraseoni mandi of Balaghat district the arrivals of paddy were more in the months of November, December, January and February. The arrivals started diminishing from March and were lesser in the months of July to October. The trend was similar in all the three years. The prices, on the other hand, were least in the months of November, December, January and February. These were comparatively higher during the months August to October. It is thus clear that with the increase in arrivals the prices decreased and with decrease in arrivals prices started soaring (Table 3.10 and 3.11).

Table 3.10 Monthly arrivals and prices of paddy in Waraseoni mandi

(Arrivals – Qtls.)

Month	1999-2000		2000-2001		2001-2002	
	Arrivals	Modal price	Arrivals	Model price	Arrivals	Modal price
April	31,090.67	740	21,767.00	700	25,633.00	645
May	32,137.07	760	44,957.00	740	40,188.00	635
June	2,65,150.29	775	43,225.00	740	34,360.00	690
July	19,587.62	780	27,526.00	708	20,765.00	690
August	21,029.74	900	25,970.00	578	30,222.00	665
September	16,212.90	830	32,188.00	635	34,484.00	705
October	29,946.24	875	23,903.00	645	41,562.00	700
November	58,517.16	700	51,239.00	675	55,104.00	670
December	69,469.58	730	47,711.00	708	1,07,489.00	670
January	49,566.13	760	45,256.00	668	91,486.00	665
February	34,965.66	650	34,233.00	663	56,214.00	660
March	34,497.06	875	33,877.00	590	37,261.00	645
Total	4,23,535.12	--	4,31,852.00	--	5,74,768.00	--

Table 3.11 Percentage of arrivals in different months and index of price variation of paddy in Waraseoni mandi

Month	1999-2000		2000-2001		2001-2002	
	Arrivals	Modal price	Arrivals	Modal price	Arrivals	Modal price
April	7.34	100	5.04	100	4.46	100
May	7.59	103	10.41	106	6.99	98
June	6.26	105	10.01	106	5.98	107
July	4.62	105	6.37	101	3.62	107
August	4.97	122	6.01	83	5.26	103
September	3.83	122	7.45	91	6.00	109
October	7.07	118	5.54	92	7.23	109
November	13.82	95	11.86	96	9.59	104
December	16.40	99	11.05	101	18.70	104
January	11.70	103	10.48	95	15.91	103
February	8.26	88	7.93	95	9.78	102
March	8.14	118	7.85	84	6.48	100
Total	100.00	-	100.00	-	100.00	-

In Balaghat mandi of the same district the arrivals of paddy were generally higher during the months of November, December, January and February. These incidentally include harvest and post harvest seasons. The phenomenon was similar in all the three reference years of 1999-2000, 2000-2001 and 2001-2002. The arrivals were lesser during the months of July, August, September and October. This phenomenon was noted for all the reference years. The prices, on the other hand, were least in the harvest and post harvest months of November, December, January and February. Thus in Balaghat mandi also the prices of paddy were least during the harvest and post harvest months and increased thereafter and were highest in the months of September and October (Table 3.12 and 3.13).

Table 3.12 Monthly arrivals and prices of paddy in Balaghat mandi

(Arrivals – Qtls.)

Month	1999-2000		2000-2001		2001-2002	
	Arrivals	Modal price	Arrivals	Model price	Arrivals	Modal price
April	14,220.54	690	8,295.74	716	8,995.26	658
May	32,617.49	675	25,281.95	695	34,438.08	686
June	26,485.06	635	35,062.53	682	22,397.58	751
July	11,454.70	659	20,288.31	625	12,618.51	730
August	12,921.51	670	16,504.29	640	14,554.46	710
September	7,501.54	682	17,548.38	668	11,030.99	736
October	14,208.75	680	18,536.00	650	23,330.30	740
November	36,364.48	626	51,377.07	675	34,288.25	636
December	44,285.74	669	61,260.52	659	68,101.84	620
January	30,931.32	698	37,053.26	664	33,892.63	652
February	17,292.37	705	16,515.49	653	17,917.99	675
March	15,641.05	718	17,534.60	668	16,677.15	650
Total	2,63,924.55	-	3,25,258.14	-	2,98,243.04	-

Table 3.13 Percentage of arrivals in different months and Index of price variation of Paddy in Balaghat mandi

Month	1999-2000		2000-2001		2001-2002	
	Arrivals	Modal price	Arrivals	Model price	Arrivals	Modal price
April	5.39	100	2.55	100	3.02	100
May	12.36	98	7.77	97	11.55	104
June	10.03	92	10.78	95	7.51	114
July	4.34	96	6.24	87	4.23	110
August	4.89	97	5.07	89	4.88	108
September	2.84	99	5.40	93	3.70	112
October	5.38	99	5.70	91	7.82	112
November	13.78	91	15.80	94	11.50	97
December	16.78	97	18.83	92	22.83	94
January	11.73	101	11.39	93	11.36	99
February	6.55	102	5.08	91	6.01	103
March	5.93	104	5.39	93	5.59	99
Total	100.00	-	100.00	-	100.00	-

In Indore district in the case of Indore mandi the arrivals were higher in the months of March, April, May and June. These started declining from July onwards. The prices of wheat were lower in the harvest and post harvest months (Table 3.14 and 3.15).

Table 3.14 Monthly arrivals and prices of wheat in Indore mandi

(Arrival - Qtls.)

Month	1999-2000		2000-2001		2001-2002	
	Arrivals	Modal price	Arrivals	Model price	Arrivals	Modal price
April	3,40,584.00	625	2,12,966.00	650	1,30,043.00	690
May	1,57,650.00	675	2,44,316.00	710	76,583.00	660
June	77,051.00	650	1,24,431.00	655	69,510.00	725
July	41,482.00	725	56,748.00	680	36,408.00	635
August	36,552.00	715	50,909.00	630	52,162.00	700
September	33,405.00	750	77,441.00	600	53,165.00	730
October	39,755.00	740	44,681.00	650	31,149.00	730
November	41,313.00	700	63,261.00	850	52,541.00	675
December	43,871.00	740	72,439.00	690	37,108.00	650
January	36,605.00	760	64,879.00	700	50,770.00	675
February	36,433.00	740	67,300.00	750	46,833.00	650
March	1,88,686.00	650	1,22,272.00	700	1,22,682.00	725
Total	10,73,387.00	-	12,01,643.00	-	7,58,954.00	-

Table 3.15 Percentage of arrivals in different months and index of price variation of wheat in Indore mandi

Month	1999-2000		2000-2001		2001-2002	
	Arrivals	Modal price	Arrivals	Model price	Arrivals	Modal price
April	31.73	100	17.72	100	17.13	100
May	14.69	108	20.33	109	10.09	96
June	7.18	104	10.36	101	9.16	105
July	3.86	116	4.72	105	4.80	92
August	3.46	114	4.24	97	6.87	101
September	3.11	120	6.44	92	7.01	106
October	3.70	118	3.72	100	4.10	106
November	3.85	112	5.26	131	6.92	98
December	4.09	118	6.03	106	4.89	94
January	3.41	122	5.40	108	6.69	98
February	3.39	118	5.60	115	6.17	94
March	17.58	104	10.18	108	16.17	105
Total	100.00	-	100.00	-	100.00	-

In Sanver mandi also wheat arrivals were higher in the months of March, April, May and June. The prices of wheat, on the other hand, were least in these months. The prices increased with the declining arrivals of wheat (Table 3.16. and 3.17).

Table 3.16 Movement of monthly arrivals and prices of wheat in Sanwer mandi

(Arrival - Qtls.)

Month	1999-2000		2000-2001		2001-2002	
	Arrivals	Modal price	Arrivals	Model price	Arrivals	Modal price
April	1,59,615.00	560	1,21,271.00	651	2,598.00	700
May	59,804.00	560	70,461.00	621	1,164.00	726
June	22,938.00	631	21,809.00	621	376.00	761
July	11,955.00	660	12,653.00	670	124.00	786
August	13,466.00	660	13,948.00	670	20.00	771
September	16,687.00	700	14,962.00	650	-	-
October	10,110.00	731	199.00	700	122.00	841
November	13,721.00	721	12,338.00	721	346.00	811
December	18,348.00	721	8,467.00	750	696.00	800
January	14,823.00	700	11,835.00	651	879.00	802
February	7,779.00	690	18,066.00	635	1,138.00	701
March	52,587.00	700	7,129.00	751	3,101.00	700
Total	4,01,833.00	-	3,13,138.00	-	10,564.00	-

Table 3.17 Percentage of arrivals in different months and index of price variation of wheat in Sanver mandi

Month	1999-2000		2000-2001		2001-2002	
	Arrivals	Modal price	Arrivals	Model price	Arrivals	Modal price
April	39.72	100	38.73	100	24.59	100
May	14.88	100	22.50	95	11.03	104
June	5.71	113	6.96	95	3.56	109
July	2.98	118	4.04	103	1.17	112
August	3.35	118	4.45	103	0.19	110
September	4.15	125	4.76	100	-	-
October	2.52	131	0.06	108	1.15	120
November	3.41	129	3.94	111	3.28	116
December	4.57	129	2.70	115	6.59	114
January	3.69	125	3.78	100	8.32	115
February	1.93	123	5.78	98	10.77	100
March	13.09	125	2.28	115	29.35	100
Total	100.00	-	100.00	-	100.00	-

Thus in both the districts for two markets each the arrivals were higher in harvest and post harvest seasons. Inversely, the prices were lower in those seasons. As the arrivals started decreasing the prices increased. This was true for both the crops of paddy and wheat.

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CHAPTER – IV

CHARACTERISTICS OF SAMPLE FARMERS

This chapter describes the characteristics of sample farmers with regard to their villages and markets. It also gives the details of sample farmers as regards size of operational holdings, castewise distribution, educational standards, etc. As regards agriculture the chapter describes tenancy and rent, irrigation and cropping pattern. It also gives the details of assets including livestock, implements and machinery and their value.

4.1 Characteristics of Sample Farmers of Balaghat District

4.1.1 Caste wise Distribution

It is seen from the table that at the aggregate level, other backward castes and scheduled castes were the two most important agriculturists castes in the study area, accounting for 66.67 per cent and 18.33 per cent respectively. It is important to note that other backward castes were largely concentrated in the size groups 2.01- 4.0 hectares and 4.01 - 6.0 hectares. General castes group, which includes brahmin and other higher castes accounted for 10.00 per cent of the sample farmers (Table 4.1)

Table 4.1 Distribution of households by castes in district Balaghat 2001-02

Size Group	General castes	Scheduled castes	Scheduled tribes	Other backward castes	Total
Marginal (Upto 1 hectare)	–	4 (33.33)	–	8 (66.67)	12 (100.00)
Small (1-2 hectares)	2 (16.66)	2 (16.67)	2 (16.67)	6 (50.00)	12 (100.00)
Semi-Medium (2 to 4 hectares)	1 (8.33)	2 (16.67)	–	9 (75.00)	12 (100.00)
Medium (4 to 6 hectares)	1 (8.33)	2 (16.67)	–	9 (75.00)	12 (100.00)
Large (6 to 8 hectares)	2 (16.67)	1 (8.33)	1 (8.33)	8 (66.67)	12 (100.00)
Total	6 (10.00)	11 (18.33)	3 (5.00)	40 (66.67)	60 (100.00)

Figures in the parentheses represent the percentage.

4.1.2 Composition of Families by Age and Sex

The overall family size was 5.55 with 2.95 males and 2.60 females. The total number of adult family members was 4.28 with 2.22 males and 2.06 females. The average number of children was 1.26 with only 0.53 females.

Table 4.2 Family details of sample households by size groups, district Balaghat 2001-02

Size Group	Adults			Children Below 15 years			Total		
	Male	Female	Total	Male	Female	Total	Male	Female	Total
Marginal	25 (2.08)	27 (2.25)	52 (4.33)	7 (0.58)	4 (0.33)	11 (0.91)	32 (2.67)	31 (2.58)	63 (5.25)
Small	23 (1.92)	25 (2.08)	48 (4.00)	5 (0.42)	7 (0.58)	12 (1.00)	28 (2.33)	32 (2.67)	60 (5.00)
Semi-Medium	23 (1.92)	24 (2.00)	7 (3.92)	11 (0.92)	7 (0.58)	18 (1.50)	34 (2.83)	31 (2.58)	65 (5.41)
Medium	30 (2.50)	25 (2.08)	55 (4.58)	16 (1.33)	5 (0.42)	21 (1.75)	46 (3.83)	0 (2.50)	76 (6.33)
Large	32 (2.66)	23 (1.92)	55 (4.58)	5 (0.42)	9 (0.75)	14 (1.17)	37 (3.08)	32 (2.67)	69 (5.75)
Total	133 (2.22)	124 (2.06)	257 (4.28)	44 (0.73)	32 (0.53)	76 (1.26)	177 (2.95)	156 (2.60)	333 (5.55)

4.1.3 Level of Education

Of the total heads of households 18.33 per cent were illiterate. The largest number of literate heads were educated up to matriculation. Not more than 13.33 per cent of the heads of households heads were above level of matric.

Table 4.3 Level of education of respondents by size groups, district Balaghat 2001-02

Size Group	Illiterate	Literate	Primary	Matric	Higher Secondary	Graduation	Post-Graduation	Total
Marginal	4 (33.33)	1 (8.33)	1 (8.33)	5 (41.67)	_	_	1 (8.34)	12
Small	3 (25.00)	3 (25.00)	1 (8.34)	5 (41.67)	_	_	_	12
Semi-Medium	2 (16.67)	1 (8.33)	2 (16.67)	5 (41.67)	1 (8.33)	1 (8.33)	_	12
Medium	1 (8.33)	4 (33.33)	2 (16.67)	4 (33.33)	_	_	1 (8.34)	12
Large	1 (8.33)	1 (8.33)	_	6 (50.00)	1 (8.33)	2 (16.67)	1 (8.34)	12
Total	11 (18.33)	10 (16.67)	6 (10.00)	25 (41.00)	2 (3.33)	3 (5.00)	3 (5.00)	60 (100.00)

Figures in the parentheses represent the percentage figures.

Forty per cent of the farming households were having matric level of education. More than forty per cent of the households had higher level of education than matriculation.

Table 4.4 Highest education in the family by size groups, district Balaghat 2001-02

Size Group	illiterate	Literate	Primary	Matric	Higher Secondary	Graduation	Post Graduation	Total
Marginal	1 (8.33)	_	3 (25.00)	5 (41.67)	1 (8.33)	1 (8.33)	1 (8.34)	12
Small	_	_	2 (16.66)	5 (41.67)	_	_	5 (41.67)	12
Semi-Medium	1 (8.33)	_	1 (8.33)	5 (41.67)	2 (16.67)	2 (16.67)	1 (8.33)	12
Medium	1 (8.33)	1 (8.33)	_	5 (41.67)	2 (16.67)	1 (8.33)	2 (16.67)	12
Large	_	_	_	4 (33.33)	3 25.00	1 (8.34)	4 (33.33)	12
Total	3 (5.00)	1 (1.67)	6 (10.00)	24 (40.00)	8 (13.33)	5 (8.33)	13 (21.67)	60 (100.00)

Figures in the parentheses represent the percentage

4.1.4 Operational Holdings and Cropping Pattern

4.1.4.1 Average Size of Holdings

The overall average size of holdings was 3.53 hectare. Leased in activity was prevalent only in the marginal size group with an average size of 0.02 hectare. Leased out activity was not practiced in any size group. The average size of operational holdings was 0.69, 1.57, 2.96, 4.59 and 7.86 in semi-medium, medium and large farms respectively (Table 4.5).

It was noted that an area of 1.20 hectares was taken on lease by farmers belonging to marginal size group. The entire leased-in area was irrigated. The cash rent fixed for lease in area was Rs.7,500 per hectare (Table 4.6).

Table 4.6 Distribution of leased in land by size of holdings, district Balaghat 2001-02

Size group	Area under fixed cash rent			Average cash rent per hectare		
	Irrigated	Un irrigated	Total	Irrigated	Un-irrigated	Total
Marginal	1.20	_	1.20	7500.00	_	7500.00
Small	_	_	_	_	_	_
Semi-Medium	_	_	_	_	_	_
Medium	_	_	_	_	_	_
Large	_	_	_	_	_	_
Total	1.20	_	1.20	7500.00	_	7500.00

4.1.4.2 Cropping Pattern

Out of the gross cropped area of 304.43 hectares, more than 84 per cent was devoted to staple food crops, viz., paddy and wheat, while other crops shared only 16 per cent of area (Table 4.7).

In all the size groups more than 79 per cent of the GCA was devoted to staple food crops. Rest of the crops namely: gram, maize, linseed, kulthi, mustard, vegetables and others were grown on 14 to 20 per cent of GCA .The two crops (paddy and wheat) together occupied 79.64, 86.95, 87.42, 80.98 and 86.30 per cent of GCA by marginal, small, semi-medium, medium and large category farmers respectively.

4.1.4.3 Productivity

The average productivity of paddy and wheat was 23.18 qtls. and 12.42 qtls. per ha respectively. Yield of maize and jowar was 20.44 qtls. and 20.00 qtls per ha respectively. Yield of gram, kulthi and arhar were at 10.40 qtls., 6.00 qtls. and 10.86 qtls. per hectare respectively. Among oilseeds, yield of mustard and linseed was at 8.00 qtls and 4.53 qtls per ha. respectively.

Table 4.8 Productivity of important crops, district Balaghat 2001-02

(Figures - quintals per hectare)

Size Group	Paddy	Kulthi	Maize	Arhar	Wheat	Gram	Linseed	Lakhadi	Jowar	Mustard	Paddy
Marginal	23.70	_	_	_	11.89	6.56	_	10.47	_	_	_
Small	22.21	_	_	_	13.40	8.93	_	_	_	_	_
Semi-Medium	22.00	_	_	_	10.00	7.75	0.77	15.00	_	_	20.00
Medium	24.96	6.00	22.00	_	12.13	10.40	5.78	_	20.00	_	18.33
Large	22.71	_	20.00	7.00	13.66	13.12	2.40	_	_	8.00	21.09
Total	23.18	6.00	20.44	7.00	12.42	10.40	4.53	10.86	20.00	8.00	20.14

4.1.4.4 Distribution of Livestock

It is revealed that the total number of livestock on per farm was 6.16, 7.00, 8.83, 11.75 and 21.00 and that of milch animals was 3.08, 4.42, 5.17, 5.92 and 12.83 on marginal, small, semi-medium, medium and large farms respectively. At the overall level, the total number of livestock was 10.95 (Table 4.9).

Table 4.9 Distribution of animals per farm by size group of holdings district Balaghat, 2001-02

Size Group	Milch animals	Draught animals	Young stock	Total
Marginal	37 (3.08)	18 (1.50)	19 (1.58)	74 (6.16)
Small	53 (4.42)	19 (1.58)	12 (1.00)	84 (7.00)
Semi-Medium	62 (5.17)	22 (1.83)	22 (1.83)	106 (8.83)
Medium	71 (5.92)	30 (2.50)	40 (3.33)	141 (11.75)
Large	154 (12.83)	32 (2.67)	66 (5.50)	252 (21.00)
Total	377 (6.28)	121 (2.02)	159 (2.65)	657 (10.95)

Figures in the parentheses represent the livestock heads per farm.

4.1.4.5 Distribution of Agricultural Assets

Major assets, like tractors and trolleys, were non-existent on marginal, small and semi-medium farms. The ownership of tractors and trolleys increased with the increase in size of farms. However, the number of tractors and trolleys was 0.08 and 0.08 per farm. As far the ownership of bullock carts and tube wells / pump sets were concerned, the data revealed that it increased with the increase of farm size. It was 0.77 and 0.43 per farm respectively. The ownership of sprinklers was non-existence in marginal and small farm size groups. It was 0.07 per farm.

The average value of tractors was Rs.23,083, for trolley it was Rs.4,417, for bullock cart Rs.3,978, for sprinkler Rs. 1,025, for tube well/ pump set Rs.25,217 and for thresher Rs.517 (Table 4.10).

Table 4.10 Distribution of important assets per farm by size groups in district Balaghat 2001-02

Size group	Tractor		Trolley		Bullock/Horse/ camel cart		Tube well Pump set		Sprinkler		Thresher	
	No.	Value	No.	Value	No.	Value	No.	Value	No.	Value	No.	Value
Marginal	_	_	_	_	6 (0.50)	32,000 (2667)	3 (0.25)	1,01,000 (8417)	_	_	_	_
Small	_	_	_	_	8 (0.67)	35,500 (2958)	4 (0.33)	53,000 (4417)	_	_	_	_
Semi-Medium	_	_	_	_	10 (0.83)	52,200 (4350)	2 (0.17)	53,000 (4417)	2 (0.17)	30,500 (2542)	_	_
Medium	2 (0.17)	5,75,000 (47917)	2 (0.17)	1,20,000 (10000)	10 (0.83)	44,000 (3667)	8 (0.67)	2,77,000 (2308)	1 (0.08)	16,000 (1333)	_	_
Large	3 (0.25)	8,10,000 (67500)	3 (0.25)	1,45,000 (12883)	12 (1.00)	75,000 (6250)	9 (0.75)	1,20,000 (10000)	1 (0.08)	15,000 (1250)	2 (0.17)	31,000 (2583)
Total	5 (0.08)	13,85,000 (23083)	5 (0.08)	2,65,000 (4417)	46 (0.77)	2,38,700 (3978)	26 (0.43)	15,13,000 (25217)	4 (0.07)	61,500 (1025)	2 (0.03)	31,000 (517)

Figures in the parentheses represent No./ Value per farm

4.1.5 Utilization of Production

4.1.5.1 Paddy

As regards the utilization pattern of paddy, out of the total production of 82.05 qtls per farm 17.96 per cent was utilized for home consumption, 4.88 per cent for seed, 6.25 per cent for payment of wages and 70.91 per cent was marketed. It is revealed that percentage of quantity consumed decreased with the increase in size of farms. The percentage of use on seed varied from 3.78 per cent to 7.36 per cent. It varied from 2.62 per cent to 10.26 per cent in the case of payment to the labourers. The percentage of quantity marketed increased with the increase in farm sizes from 50.25 to 78.89 (Table 4.11).

Table 4.11 Utilization of paddy production per farm by size groups, district Balaghat, 2001-02

(Paddy in qtl.)

Size group	Home consumption	Animal	Seed	Payment as wages	Quantity marketed	Carry over Qty	Quantity purchased	Total
Marginal	6.96 (42.39)	_	1.21 (7.36)	_	8.25 (50.25)	_	_	16.42 (100.00)
Small	11.25 (32.14)	_	2.29 (6.55)	0.92 (2.62)	20.54 (58.69)	_	_	35.00 (100.00)
Semi-Medium	15.83 (22.40)	_	2.67 (3.78)	7.25 (10.26)	44.92 (63.56)	_	_	70.67 (100.00)
Medium	18.83 (16.28)	_	4.92 (4.25)	10.83 (9.37)	81.08 (70.10)	_	_	115.66 (100.00)
Large	20.83 (12.08)	_	8.92 (5.17)	6.67 (3.86)	136.08 (78.89)	_	_	172.50 (100.00)
Total	14.74 (17.96)	_	4.00 (4.88)	5.13 (6.25)	58.18 (70.91)	_	_	82.05 (100.00)

Figures in the parentheses represent the percentage.

4.1.5.2 Wheat

It is clearly evident from the table 4.12 that out of the total wheat production of 9.07 quintals per farm, 32.41 per cent was utilized for home consumption and 54.25 per cent was marketed. Another 8.05 per cent and 5.29 per cent was utilized for seed and payment of labourers respectively. It was noted that the percentage of quantity of home consumption decreased with the increase in farm sizes except on medium size farms. The percentage of quantity of marketed generally increased with the increase of farm size except on medium size farms. The disposal pattern for seed showed that percentage varied from 1.96 to 11.08 (Table 4.12).

Table 4.12 Utilization of wheat production per farm by size groups, district Balaghat 2001-02

Figures - Wheat in qtl.

Size group	Home consumption	Animal	Seed	Payment as wages	Quantity marketed	Carry over qty.	Quantity purchased	Total
Marginal	1.83 (89.71)	–	0.04 (1.96)	–	0.17 (8.33)	–	–	2.04 (100.00)
Small	2.08 (42.28)	–	0.25 (5.08)	0.17 (3.45)	2.42 (49.19)	–	–	4.92 (100.00)
Semi-Medium	2.21 (33.58)	–	0.29 (4.41)	0.33 (5.02)	3.75 (56.99)	–	–	6.58 (100.00)
Medium	4.79 (35.38)	–	1.50 (11.08)	0.92 (6.79)	6.33 (46.75)	–	–	13.54 (100.00)
Large	3.77 (20.64)	–	1.58 (8.65)	1.00 (5.47)	11.92 (65.24)	–	–	18.27 (100.00)
Total	2.94 (32.41)	–	0.73 (8.05)	0.48 (5.29)	4.92 (54.25)	–	–	9.07 (100.00)

Figures in the parentheses represent the percentage.

4.1.6 Storage Facilities and Opinion on its Development / Improvement

The average storage capacity per household came to be 43.20 quintals. The storage facilities were available in the form of clay tanks clay bunds and gunny bags, on marginal and small farms whereas it was found in the form of iron drums, steel trunks, clay bunds, clay tanks and gunny bags on semi-medium, medium and large farms. As regards the methods for storage, generally straw and medicines are used to protect the produce from the pests. The data presented in table 4.13 reveals that storage capacity increased in the increase of farm size. But, it is to be mentioned here that there was no scientific storage facilities on the sample farms. The storage was done in traditional manner. So the storage facilities need to be improved.

Table 4.13 Storage facility per farm by size groups, district-Balaghat

Size Group	Type of Storage	Capacity (qtls)	Method Used	Remark
Marginal	Clay tank, trunk, gunne bags, steel trunk	14	Medicines used traditional method.	Nobody used scientific method. Only households used medicines in steel tank, clay bunds, Farmers preferred to keep grain in clay bunds and clay tanks, which are traditional methods.
Small	Gunne bags, clay bunds, steel trunk	29	Medicines used traditional method.	
Semi medium	Clay bunds, gunne bags, iron drums	41	Medicines used traditional method.	
Medium	Clay bunds, clay tanks , Iron drums, gunne bags.	53	Medicines used traditional method.	
Large	Clay bunds, clay tanks, iron drums.	79	Medicines used traditional method.	
Average	---	43.20		

The data presented in table 4.14. provide opinion of sample households on development of better storage facilities. If institutional finance was made available, of the total farmers 65.00 per cent favoured the development of better storage facilities though the marketed surplus of the sample farms was not in large quantity. Even then they wished to improve it. As regards the improvement in storage capacity it was found that per farm capacity would be increased to 64 quintals. It was also noted that the proposed capacity increased with the increase in farm size.

Table 4.14 Number of farmers giving opinion on development of better storage facilities if institutional finance was made available, Balaghat district

Size group	No	Yes	If yes, of how much capacity (Qtl./Farm)
Marginal	6 50.00	6 50.00	25.00
Small	3 25.00	9 75.00	40.00
Semi medium	3 25.00	9 75.00	64.00
Medium	6 50.00	6 50.00	74.00
Large	3 25.00	9 75.00	108.00
Overall	21 35.00	39 65.00	64.00

4.2 Characteristics of Sample Farmers of Indore District

4.2.1 Caste wise Distribution

It is seen from table 4.15 that other castes group which included Kalota / Patel, Parmar and Kumawat was the most important agriculturist castes group in the study area accounting for 48.33 per cent and general castes group accounting for 26.67 per cent. It is important to note that in other backward castes group marginal and large size groups were concentrated. The general caste group, which includes brahmin, jain and thakur was concentrated in the semi medium, medium and large size groups. The scheduled castes and scheduled tribes castes accounted for 16.67 per cent and 8.33 per cent.

Table 4.15 Distribution of households by castes, Indore district, 2001-02

Size group	General	Scheduled castes	Schedule tribes	O.B.C. (Other - Backward Castes)	Total
Marginal	1 (8.33)	3 (25.00)	_	8 (66.67)	12 (100.00)
Small	3 (25.00)	2 (16.67)	1 (8.33)	6 (50.00)	12 (100.00)
Semi-medium	4 (33.34)	2 (16.67)	_	6 (50.00)	12 (100.00)
Medium	4 (33.34)	3 (25.00)	4 (33.34)	1 (8.33)	12 (100.00)
Large	4 (33.34)	_	_	8 (66.67)	12 (100.00)
Total	16 (26.67)	10 (16.67)	5 (8.33)	29 (48.33)	60 (100.00)

Figures in the parentheses represent the percent to total number of households in a particular farm size category.

4.2.2 Composition of Family by Age and Sex

The average family size was 6.49 with 2.97 males and 3.52 females. The average size of family was largest (8.58 persons) on large farm size category followed by semi-medium, medium, marginal and small categories (6.58, 6.50, 5.75 and 5.00 persons) respectively. Average size of family with adults (including male and female) was largest among large category (6.25 persons) followed by medium, semi-medium, small and marginal categories (5.00, 4.66, 3.84 and 3.83 persons) respectively. The average number of adult family members was 4.72 with 2.27 males and 2.45 females. The average number of children was 1.77 with 0.70 males and 1.07 females (Table 4.16).

Table 4.16 Family details of sample households by size groups, Indore district, 2001-02

Size Group	Adult			Children Below 15 years			Total		
	Male	Female	Total	Male	Female	Total	Male	Female	Total
Marginal	21 (1.75)	25 (2.08)	46 (3.83)	10 (0.83)	13 (1.09)	23 (1.92)	31 (2.59)	38 (3.17)	69 5.75)
Small	23 (1.92)	23 (1.92)	46 (3.84)	6 (0.50)	8 (0.67)	14 (1.17)	29 (2.42)	31 (2.58)	60 (5.00)
Semi-Medium	28 (2.33)	28 (2.33)	56 (4.66)	11 (0.92)	12 (1.00)	23 (1.92)	39 (3.25)	40 (3.33)	79 (6.58)
Medium	29 (2.42)	40 (3.33)	60 (5.00)	3 (0.25)	15 (1.25)	18 (1.50)	32 (2.67)	46 (3.83)	78 (6.50)
Large	35 (2.72)	40 (3.33)	75 (6.25)	12 (1.00)	16 (1.33)	28 (2.33)	47 (3.92)	56 (4.66)	103 (8.58)
Total	136 (2.27)	147 (2.45)	283 (4.72)	42 (0.70)	64 (1.07)	106 (1.77)	180 (2.97)	209 (3.52)	389 (6.49)

Figures in the parentheses represent the per farm number

4.2.3 Level of Education

A glance on table 4.17 on overall level, revealed that highest percentage of heads of house holds were educated up to matriculation standard (50 per cent) followed by literates (11.67 per cent) primary and graduation (10.00 per cent each) and higher secondary (8.33 per cent) respectively. Equal number of respondents were found to be illiterate and qualified up to post graduation level (5 per cent).

Table 4.17 Level of education of heads of households size groups, Indore district, 2001-02

Size Group	Illiterate	Literate	Primary	Matriculation	Secondary	Graduate	Post-Graduate	Total
Marginal	1 (8.33)	_	2 (16.67)	6 (50.01)	1 (8.33)	1 (8.33)	1 (8.33)	12 (100.00)
Small	_	2 (16.67)	2 (16.67)	3 (5.00)	3 (5.00)	2 (16.67)	_	12 (100.00)
Semi-Medium	1 (8.33)	4 (33.33)	_	6 (50.01)	_	1 (8.33)	_	12 (100.00)
Medium	1 (8.33)	_	_	8 (66.67)	1 (8.33)	2 (16.67)	_	12 (100.00)
Large	_	1 (8.33)	2 (16.67)	7 (58.33)	_	_	2 (16.67)	12 (100.00)
Total	3 (5.00)	7 (11.67)	6 (10.00)	30 (50.00)	5 (8.33)	6 (10.00)	3 (5.00)	60 (100.00)

Figures in the parentheses represent the percentage to total.

Table 4.18 highlights the highest level of education in sample household families. It revealed that 56.67 per cent of farm households were having matriculation level as the highest education followed by 28.33 per cent graduation level, 6.67 per cent higher secondary level and only 5.00 per cent post graduation level.

Table 4.18 Size group wise highest education in the family, Indore district, 2001-02

Size group	Illiterate	Literate	Primary	Matriculation	Higher Secondary	Graduation	Post-Graduation	Total
Marginal	_	_	1 (8.33)	8 (66.67)	1 (8.33)	2 (16.67)	_	12 (100.00)
Small	_	_	_	7 (58.33)	_	5 (41.67)	_	12 (100.00)
Semi-Medium	_	_	_	6 (50.01)	2 (16.67)	3 (25.00)	1 (8.33)	12 (100.00)
Medium	_	_	_	7 (58.33)	1 (8.33)	2 (16.67)	2 (16.67)	12 (100.00)
Large	_	_	1 (8.33)	6 (50.00)	_	5 (41.67)	_	12 (100.00)
Total	_	_	2 (8.33)	34 (56.67)	4 (6.67)	17 (28.33)	3 (5.00)	60 (100.00)

Figures in the parentheses represent the percent to total.

4.2.4 Average Size of Holdings

The average operated area per farm was 3.79 hectares. Of this 85.75 per cent was irrigated and 14.25 per cent was un irrigated. Of the total operated area per farm 3.72 hectares was owned and 0.07 hectares was leased. None of the farmers leased out his land. The average size of operational holding was 0.94, 1.55, 2.64, 4.88, and 8.97 hectares on marginal, small, semi-medium, medium and large farms respectively. The leased in land area was only on marginal and medium size groups, with average leased in land of 0.15 hectare unirrigated land and 0.21 hectare irrigated land on the respective farm size groups. The proportion of leased in area in the total operated area, was 15.96 and 4.30 per cent on marginal and medium size farms respectively. The irrigated operated area among size groups showed 94.47 per cent in medium size farms and minimum of 74.47 per cent on marginal size farms (table 4.19).

The fixed cash rent on leasing has been found Rs.3,000 per hectare for unirrigated land and Rs.4,000 per hectare per annum for irrigated land.

Table 4.19 Distribution of operational holdings, sample households, district Indore, 2001-02

(Hectare / farm)

Size Group	Owned Land			Leased Out			Leased In			Total Operated Area		
	Irri-gated	Un-irrigated	Total	Irrigated	Un-irrigated	Total	Irrigated	Un-irrigated	Total	Irrigated	Un-irrigated	Total
Marginal	0.70 (74.47)	0.09 (9.57)	0.79 (84.04)	_	_	_	--	0.15 (15.96)	0.15 (15.96)	0.70 (74.47)	0.24 (25.53)	0.94 (100.00)
Small	1.38 (89.03)	0.17 (10.97)	1.55 (100.00)	_	--	_	_	--	_	1.38 (89.03)	0.17 (10.97)	1.55 (100.00)
Semi-Medium	2.25 (85.23)	0.39 (14.72)	2.64 (100.00)	_	_	_	_	_	_	2.25 (85.23)	0.39 (14.77)	2.64 (100.00)
Medium	4.40 90.17	0.27 (5.53)	4.67 (95.70)	_	_	_	0.21 (4.30)	_	0.21 (4.30)	4.61 (94.47)	0.27 (5.53)	4.88 (100.00)
Large	7.29 (81.27)	1.68 (18.73)	8.97 (100.00)	_	_	_	_	_	_	7.29 (81.27)	1.68 (18.73)	8.97 (100.00)
Total	3.20 (84.43)	0.52 (13.72)	3.72 (98.15)	_	_	_	0.04 (1.06)	0.03 (0.79)	0.07 (1.85)	3.25 (85.75)	0.54 (14.25)	3.79 (100.00)

Figures in the parentheses represent the percentage.

Table 4.20 Distribution of leased in land by size of holdings, Indore district, 2001-02

Size group	Area under fixed cash rent			Cash rent per hectare			Percentage of Area Under Cash Rent
	Irrigated	Un-irrigated	Total	Irrigated	Un-irrigated	Total	
Marginal	_	1.75	1.75	_	3000	3000	100.00
Small	_	_	_	_	_	_	_
Semi-Medium	_	_	_	_	_	_	_
Medium	2.50	--	2.50	4000	--	4000	100.00
Large	_	_	_	_	_	_	_
Total	2.50	1.75	4.25	4000	3000	7000	100.00

Figures in the parentheses represent the per cent to total.

4.2.5 Cropping Pattern

Wheat, gram and soybean were important crops. The area under by these three crops constituted 92.51 per cent of the gross cropped area. Wheat occupied 32.34 per cent, gram 7.95 per cent and soybean, 52.22 per cent. The other crops worth mentioning were maize, jowar, and arhar (Table 4.21). More than 84 per cent of the gross cropped area was under soybean and wheat. The two crops (soybean and wheat) together occupied 98.95, 84.51, 83.73, 78.47 and 87.07 per cent area of the total cropped area under marginal, small, semi medium, and large farms respectively.

Table 4.21 Cropping pattern by size groups, district Indore

(Area – hectares)

Size Group	Crop							Gross cropped area	GCA per farm
	Soybean	Maize	Jowar	Arhar	Wheat	Gram	Others		
Marginal	9.25 (48.43)	0.02 (1.05)	-	-	9.65 (50.52)	-	-	19.10 (100.00)	1.59
Small	17.85 (46.85)	1.20 (3.15)	-	0.50 (1.31)	14.35 (37.66)	2.50 (6.56)	1.70 (4.47)	38.10 (100.00)	3.18
Semi Medium	30.15 (51.89)	0.70 (1.21)	-	-	18.50 (31.84)	6.50 (11.19)	2.25 (3.87)	58.10 (100.00)	4.84
Medium	48.45 (46.68)	3.80 (3.66)	1.50 (1.45)	1.00 (0.96)	33.00 (31.79)	12.30 (11.85)	3.75 (3.61)	103.80 (100.00)	8.65
Large	93.35 (57.60)	6.25 (3.86)	0.50 (0.31)	2.20 (1.36)	47.75 (29.47)	9.00 (5.55)	3.00 (1.85)	162.05 (100.00)	12.50
Total	199.05 (52.22)	12.15 (3.19)	2.00 (0.52)	3.70 (0.97)	123.25 (32.34)	30.30 (7.95)	10.70 (2.81)	381.15 (100.00)	6.35

Figures in parentheses represent percentage to total

4.2.6 Productivity

Table 4.22 reveals that productivity of wheat and soybean was 19.80 qtls. and 10.78 qtls per hectare respectively. Yield of maize and jowar were recorded at 10.29 qtls per hectare and 6.25 qtls. per hectare respectively. Among pulse crops gram and arhar had productivity13.48 qtls and 15.30 qtls per hectare respectively. It revealed that wheat production per hectare was maximum (22.32) in large size group followed by 21.95, 18.61, 17.64 and 12.43 Qtls per hectare on semi-medium, small, medium and marginal farms, respectively. Soybean production per hectare was maximum (12.27) in small size group followed by 11.95, 10.62, 10.27 and 8.65 Qtls per on medium, large, marginal and semi medium farms respectively.

Table 4.22 Production and yield per hectare of important crops, district Indore

(Unit – quintals per hectares)

Size group	Crop					
	Soybean	Maize	Jowar	Arhar	Wheat	Gram
Marginal	95.00 (10.27)	2.00 (10.00)	-	-	120.00 (12.43)	-
Small	219.00 (12.27)	17.00 (14.17)	-	5.00 (10.00)	267.00 (18.61)	34.50 (13.80)
Semi Medium	261.00 (8.65)	8.00 (11.43)	-	-	406.00 (21.95)	74.00 (11.38)
Medium	579.00 (11.95)	35.00 (9.21)	8.50 (5.67)	14.00 (14.00)	582.00 (17.64)	205.00 (16.67)
Large	991.00 (10.62)	63.00 (10.08)	4.00 (8.00)	37.60 (17.09)	1066.00 (22.32)	98.00 (10.89)
Total	2145.00 (10.78)	125.00 (10.29)	12.50 (6.25)	56.60 (15.30)	2441.00 (19.80)	408.50 (13.48)

Figures in the parentheses denote yield per hectare in quintals.

4.2.7 Distribution of Livestock

It is revealed from table 4.23 that the livestock per farm was 3.67, 7.08, 8.17 and 10.92 and that of miltch animals was 2.42, 3.75, 3.42, 4.08 and 5.83 on marginal, small, semi medium, medium and large farms respectively. The total number of all animals per farm was 7.38 and 3.90, 1.27 and 2.22 for miltch animals, draught animals and young stocks respectively. Further it showed that the per farm number of miltch, draught and young stock increased with the increase in farm sizes (Table 4.23).

Table -4.23 Distribution of livestock per farm by size groups, district Indore

Groups	Milch animals	Draught animals	Young stock	Total
Marginal	29 (2.42)	6 (0.50)	9 (0.75)	44 (3.67)
Small	45 (3.75)	15 (1.25)	25 (2.08)	85 (7.08)
Semi-Medium	41 (3.42)	15 (1.25)	29 (2.42)	85 (7.08)
Medium	49 (4.08)	17 (1.42)	32 (2.67)	98 (8.17)
Large	70 (5.83)	23 (1.91)	38 (3.17)	131 (10.92)
Total	234 (3.90)	76 (1.27)	133 (2.22)	443 (7.38)

Figures in the parentheses represent livestock per farm.

4.2.8 Distribution of Agricultural Assets

Table 4.24 showed assets like tractors and trolleys, were non existant on marginal size farms. The ownership of tractors and trolleys increased with the increase in size of farms. So far as the ownership of bullock carts, tube wells/ pump sets and others were concerned it was 0.62 and 2.27 and 0.90 per farm.

Table -4.24 Distribution of important assets per farm size groups, district Indore

Size groups	Tractor		Trolley		Bullock cart		Tube well/ pumpset		Others	
	No	Average value	No	Average value	No	Average value	No	Average value	No	Average value
Marginal	-	-	-	-	2 (0.17)	9,000 (750)	17 (1.42)	3,28,000 (27,333)	1 (0.08)	20,000 (1,667)
Small	3 (0.25)	90,00,000 75,000	3 (0.25)	2,00,000 (16,667)	10 (0.83)	69,000 (5,750)	19 (1.58)	4,37,000 (36,417)	5 (0.42)	1,00,000 (8,333)
Semi medium	3 (0.25)	7,73,000 (64,417)	3 (0.25)	1,67,000 (13,917)	8 (0.67)	43,000 (3,583)	18 (1.50)	3,46,000 (28,833)	18 (1.50)	95,000 (7,917)
Medium	5 (0.42)	9,75,000 (81,250)	5 (0.42)	2,12,000 (17,667)	7 (0.58)	40,000 (3,333)	41 (3.42)	8,66,000 (72,167)	6 (0.50)	1,38,000 (11,500)
Large	10 (0.83)	22,76,000 (1,89,667)	10 (0.83)	5,97,000 (49,750)	10 (0.83)	58,000 (4,833)	41 (3.42)	7,99,000 (66,583)	14 (1.17)	5,08,600 (42,383)
Total	21 (0.35)	49,24,000 (82,067)	21 (0.35)	11,76,000 (19,600)	37 (0.62)	2,19,000 (3,650)	136 (2.27)	27,76,000 (46,267)	54 (0.90)	(8,61,800) (14,363)

The average value of agricultural assets was estimated at Rs.82,067 for tractors, Rs.19,600 for trolley, Rs.3,650 for bullock cart, Rs.46,267 for tube well/ pump set and Rs.14,363 for other assets.

4.2.9 Utilization of Production

4.2.9.1 Soybean

It was noted that out of total production of 35.77 quintals per farm 9.14 per cent was utilized for seed, 1.71 per cent was paid as wages, and 89.10 per cent was marketed. The percentage of produce used as seed with the increase of farm size except in the case of semi medium and medium farms where it decreased. It varied from 1.72 per cent to 2.22 per cent in the case of disposal of produce for the payment as wages. There was no relationship of percentage of marketed surplus and size group.

Table-4.25 Utilization of soybean production per farm by size groups

Size group	Home consumption	Animal feed	Seeds	Payment as wages	Quantity Marketed	Carry out Quantity	Quantity purchased	Total
Marginal	-	-	0.21 2.65	-	7.71 97.35	-	-	7.92 100.00
Small	-	-	1.37 7.06	-	16.88 92.94	-	-	18.25 100.00
Semi-Medium	-	-	1.08 4.94	0.42 1.92	20.25 92.55	-	0.13 0.59	21.88 100.00
Medium	-	-	2.42 5.02	0.83 1.72	45.00 93.26	-	-	48.25 100.00
Large	-	-	11.25 13.62	1.83 2.22	69.50 84.16	-	-	82.58 100.00
Total	-	-	3.27 9.14	0.61 1.71	31.87 89.10	-	0.02 0.05	35.77 100.00

4.2.9.2 Wheat

It is evident from table 4.26 that out of the production of 41.79 quintals per farm, 21.85 per cent was utilized for home consumption and 61.33 per cent was marketed. Again 9.26 per cent and 4.81 per cent was utilized for seed and for wages to the labourers. The percentage share of produce consumed at home decreased with the size except on medium farms. The percentage of produce marketed increased with the increase of farm size.

Table-4.26 Utilization of wheat production per farm by size groups district Indore

(Unit – quintal per farm)

Size group	Home consumption	Animal feed	Seeds	Paid as wages	Quantity Marketed	Carry out Quantity	Quantity purchased	Total
Marginal	4.23 (42.13)	-	0.52 (5.18)	-	5.25 (52.29)	0.04 (0.40)	-	10.04 (100.00)
Small	6.50 (28.47)	-	2.00 (8.76)	1.83 (8.02)	11.92 (52.21)	0.58 (2.54)	-	22.83 (100.00)
Semi-Medium	783 (22.58)	-	3.83 (11.05)	1.67 (4.82)	20.51 (59.16)	-	0.83 (2.39)	34.67 (100.00)
Medium	11.67 (23.70)	-	4.58 (9.30)	3.08 (6.25)	29.17 (59.23)	0.42 (0.85)	0.33 (0.67)	49.25 (100.00)
Large	15.42 (16.73)	-	8.42 (9.14)	3.67 (3.98)	61.33 (66.54)	-	3.33 (3.61)	92.17 (100.00)
Total	9.13 (21.85)	-	3.87 (9.26)	2.05 (4.81)	25.63 (61.33)	0.21 (0.50)	0.90 (2.15)	41.79 (100.00)

4.2.10 Storage Facilities and Opinion on its Development/ Improvement

The storage capacity per farm came to 33.00 quintals. The storage facilities were available in the form of clay bunds, bunda and gunny bags on small and marginal farms, whereas, it was in the form of iron drum, steel trunk, clay bunds, semi pucca room and clay bunda on semi- medium, medium and large farms. As regards the methods for storage generally straw and medicines were used to protect the produce from the pests. The data presented in table 4.27 revealed that the storage capacity increased with the increase of farm size. But it should to be mentioned here that there was no scientific storage facilities on the sample farms. The storage was made in traditional manner. These desired improvement.

Table 4.27 Storage facility per farm by size groups, district Indore

Size group	Type of storage	Capacity (qtls)	Method used	Remark
Marginal	Clay bands,Banda,Steel trunk,Iron drums	140.00 (12.00)	Medicines used Traditional method	No body used scientific method. Only they use medicines in steel tank ,clay bands. Almost farmers prefer to keep grain in clay bunds,gunne bags which is traditional method.
Small	Clay bands,Banda,Steel trunk,Iron drums	200.00 (17.00)	Medicines used Traditional method	
Semi medium	Clay bands,Banda,Steel trunk,Iron drums,gunne bags	310.00 (26.00)	Medicines used Traditional method	
Medium	Clay bands,Banda,Steel trunk,Iron drums, gunne bags	469.00 (39.00)	Medicines used Traditional method	
Large	Clay bands,Banda,Steel trunk,Iron drums, gunne bags	858.00 (71.00)	Medicines used Traditional method	
Total		1977.00 (33.00)		

The table 4.28 provides opinion of sample farm households on development of better storage facilities. If institutional finance was made available, 33.33 per cent of the sample farmers favoured the development of better storage facilities though the marketed surplus of the sample farms was not in larger quantity even then they wished to improve it. It was found that 73.00 quintals per farm could be brought under improved storage.

Table 4.28 Number of farmers giving opinion on development of better storage facilities if institutional finance was made available

Size group	No	Yes	If yes, how much capacity in qtls/farm
Marginal	10 (83.33)	2 (16.67)	55.00 (28.00)
Small	7 (58.33)	5 (41.67)	197.00 (39.00)
Semi-Medium	9 (75.00)	3 (25.00)	150.00 (50.00)
Medium	7 (58.33)	5 (41.67)	525.00 (105.00)
Large	7 (58.33)	5 (41.67)	535.00 (107.00)
Total	40 (66.67)	20 (33.33)	1462.00 (73.00)

4.2.11 Marketing Problems Faced

The problems of marketing encompass transport, cleaning and payments received, weighments, auction and space in the market yard.

In Balaghat district as regards problems of transport only eight out of sixty (13.33 per cent) farmers complained about transport problem. Similarly only ten out of sixty farmers (16.67 per cent) opined that the rates of transport were higher. As many as fifty five out of sixty (91.67 per cent) farmers said that transport was easily available. None of the farmers presented any problem regarding loading/ unloading. Thirty three out of sixty (55.00 per cent) farmers said that cleaning operations were done timely (Table 4.29).

Table 4.29 Number of farmers giving replies regarding marketing problems district Balaghat

Size group	Transport problems		Higher rate of transport		Transport easily available		Loading/ unloading		Cleaning	
	Yes	No	Yes	No	Yes	No	Timely	Untimely	Timely	Untimely
Marginal	1 (8.33)	11 (91.67)	2 (16.66)	10 (83.33)	12 (100.0)	-	12 (100.0)	-	7 (58.33)	5 (41.67)
Small	1 (8.33)	11 (91.67)	1 (8.33)	11 (91.67)	12 (100.0)	-	12 (100.0)	-	4 (33.33)	8 (67.67)
Semi medium	4 (33.33)	8 (67.67)	4 (33.33)	8 (67.67)	8 (67.67)	4 (33.33)	12 (100.0) (100.0)	-	6 (50.00)	6 (50.00)
Medium	2 (16.66)	10 (83.33)	2 (16.66)	10 (83.33)	11 (91.67)	1 (8.33)	12 (100.0)	-	11 (91.67)	1 (8.33)
Large	-	12 (100.00)0	1 (8.33)	11 (91.67)	-	-	12 (100.0)	-	5 (41.66)	5 (58.34)
Total	8 (13.33)	52 (86.67)	10 (16.67)	50 (83.34)	55 (91.66)	5 (8.34)	60 (100.0)	-	33 (55.00)	27 (45.00)

There was no problem faced by any farmer with regard to payment as the payments were made to farmers immediately (Table 4.30).

Table 4.30 Number of farmers replying about problems of payment, district Balaghat

Size group	Immediate payment	After one week	After two week	After three week	After a month	If paid on delayed interest payment		
						Yes	No	If ,yes, how much
Marginal	12	-	-	-	-	-	-	-
Small	12	-	-	-	-	-	-	-
Semi medium	12	-	-	-	-	-	-	-
Medium	12	-	-	-	-	-	-	-
Large	12	-	-	-	-	-	-	-
Total	60	-	-	-	-	-	-	-

The weighment problem had two aspects. Firstly due to shortage in weighment, deduction in payment was made. Secondly along with shortage in weighment disproportionate reduction in price was made. While in the cases of all the selected farmers weighment was done timely only two out of sixty farmers (3.33 per cent) to complained regarding arbitrary deduction in price. As many as twenty four out of sixty (40.00 per cent) farmers complained that deduction in price was done in the name of lower quality (Table 4.31).

Table 4.31 Number of farmers replying about problems regarding weighment, district Balaghat

Size group	Weighment		Arbitrary deduction from produce for lower quality			Any reduction in price due to lower quality		
	Timely	Untimely	Yes	No	If, yes, how much	Yes	No	If, yes, how much
Marginal	12	-	-	12	-	4	8	
Small	12	-	-	12	-	6	6	
Semi medium	12	-	1	11	-	4	8	
Medium	12	-	1	11	-	4	8	
Large	12	-	-	12	-	6	6	
Total	60 (100.0)	-	2 (3.33)	58 (96.67)	-	24 (40.00)	36 (60.00)	

In the main process of auction farmers had nothing to complain. None of the selected farmers had anything to say regarding arbitrary grading or price discrimination. However twenty five out of sixty farmers (41.67 per cent) complained that some produce is taken away in the name of sample (Table 4.32).

Table 4.32 Number of farmers replying on problems regarding auction, district Balaghat

Size group	Auction			Arbitrary grading & price discrimination		Whether some quantity is taken away as sample		
	Timely	Untimely	No auction on same day	Yes	No	Yes	No	If. yes How much
Marginal	12	-	-	-	12	6	6	
Small	12	-	-	-	12	4	8	
Semi medium	12	-	-	-	12	5	7	
Medium	12	-	-	-	12	7	5	
Large	12	-	-	-	12	3	9	
Total	60 (100.0)	-	-	-	60 (100.0)	25 (41.67)	35 (58.33)	

All the farmers were satisfied with regard to space available to exhibit the produce, space for parking of vehicles and staying arrangements (Table 4.33).

Table 4.33 Number of farmers giving replies regarding problems of market yard, district Balaghat

Size group	Enough space to exhibit produce		Enough space to for parking vehicles/carts		Staying Arrangement	
	Yes	No	Yes	No	Yes	No
Marginal	12	-	12	-	12	-
Small	12	-	12	-	12	-
Semi medium	12	-	12	-	12	-
Medium	12	-	12	-	12	-
Large	12	-	12	-	12	-
Total	60 (100.00)	-	60 (100.00)	-	60 (100.00)	-

In Indore district like in Balaghat district eight out of sixty farmers (13.33 per cent) had transport problem. Nearly half of the farmers opined that the rates of transport were higher. However 47 out of sixty farmers (78.33 per cent) said that transport was easily available. Loading/ unloading was stated to be done timely in all the cases. As many as fifty seven farmers (95.00 per cent) could get cleaning / grading of their produce done timely (Table 4.34).

Table 4.34 Number of farmers giving replies regarding marketing problems Indore district

Size group	Transport problems		Higher rate of transport		Transport easily available		Loading/ unloading		Cleaning / grading	
	Yes	No	Yes	No	Yes	No	Timely	Untimely	Timely	Untimely
Marginal	2 (16.67)	10 (83.33)	7 (58.33)	5 (41.67)	10 (83.33)	2 (16.67)	12 (100.0)	-	12 (100.0)	-
Small	2 (16.67)	10 (83.33)	6 (50.00)	6 (50.00)	9 (75.00)	3 (25.00)	12 (100.0)	-	12 (100.0)	-
Semi medium	2 (16.67)	10 (83.33)	6 (50.00)	6 (50.00)	8 (66.67)	4 (33.33)	12 (100.0)	-	10 (83.33)	2 (16.67)
Medium	2 (16.67)	10 (83.33)	4 (33.35)	8 (66.67)	9 (75.00)	3 (25.00)	12 (100.00)	-	11 (91.67)	1 (8.33)
Large	-	12 (100.0)	6 (50.00)	6 (50.00)	11 (91.69)	1 (8.33)	12 (100.0)	-	12 (100.0)	-
Total	8 (13.33)	52 (86.67)	29 (48.33)	31 (51.67)	47 (78.33)	13 (21.69)	60 (100.0)	-	57 (95.00)	3 (5.00)

Like in Balaghat district none of the farmers had any thing to complain with regard to payment and all of them got the payment immediately (Table 4.35).

Table 4.35 Number of farmers replying about problems of payment, district Indore

size group	Immediately payment	After one week	After two week	After three week	After a month	If paid on delayed interest payment		
						Yes	No	If ,yes, how much
Marginal	12	-	-	-	-	-	-	-
Small	12	-	-	-	-	-	-	-
Semi medium	12	-	-	-	-	-	-	-
Medium	12	-	-	-	-	-	-	-
Large	12	-	-	-	-	-	-	-
Total	60	-	-	-	-	-	-	-

With regard to weighment except one farmer (1.67 per cent) all the farmers got the weighment done timely. As many as fifty six out of sixty farmers (93.33 per cent) stated that there was no incidence of arbitrary reduction in price. In the case of reduction due to lower quality as in Balaghat district nearly half of the farmers told that price reduction was done due to lower quality (Table 4.36).

Table 4.36 Number of farmers replying problems regarding weighment, district Indore

Size group	Weighment		Arbitrary deduction from weight for lower quality			Any reduction in price due to lower quality		
	Timely	Untimely	Yes	No	If, yes, how much	Yes	No	If, yes, how much
Marginal	12	-	1	11	-	4	8	
Small	12	-	-	12	-	6	6	
Semi medium	11	1	1	11	-	5	7	
Medium	12	-	-	12	-	7	5	
Large	12	-	2	10	-	5	7	
Total	59 (98.33)	1 (1.67)	4 (6.67)	56 (93.33)	-	27 (45.00)	33 (95.00)	

All the farmers narrated that auction of their produce was done timely. Ten per cent of the farmers complained of arbitrary grading and price discrimination. Again 43 out of 60 farmers commented that some quantity was taken away as sample (Table 4.37).

Table 4.37 Number of farmers replying on problems regarding auction, district Indore

Size group	Auction			Arbitrary grading & price discrimination		Whether some quantity is taken away as sample		
	Timely	Untimely	No auction on same day	Yes	No	Yes	No	If. yes How much
Marginal	12	-	-	1	11	10	2	
Small	12	-	-	-	12	8	4	
Semi medium	12	-	-	-	12	10	2	
Medium	12	-	-	2	10	7	5	
Large	12	-	-	3	9	8	4	
Total	60 (100.00)	-	-	6 (10.00)	54 (90.00)	43 (71.67)	17 (28.33)	

With regard to market yard except one farmer all the others were satisfied with the space available to exhibit the produce and to park the vehicles. Except seven out of sixty farmers (11.67 per cent) were satisfied with the staying, arrangement (Table 4.38)

Table 4.38 Number of farmers giving reply regarding problems of market yard district Indore

Size group	Enough space to exhibit produce		Enough space to for parking vehicles/carts		Staying Arrangement	
	Yes	No	Yes	No	Yes	No
Marginal	12	--	12	--	11	1
Small	11	1	11	1	10	2
Semi medium	12	-	12	-	11	1
Medium	12	-	12	-	11	1
Large	12	-	12	-	10	2
Total	59 (98.33)	1 (1.67)	59 (98.33)	1 (1.67)	53 (88.33)	7 (11.67)

4.2.12 Sources of Price Signals

The most important source of knowledge of prices was personal visit. The second important source was communication through radio/ T.V./ newspaper. The third source was the neighbour. Local trader acted as fourth important source of market prices (Table 4.39).

Table 4.39 Number of farmers replying about channels of price signals, district Balaghat

Size group	Message given by c.a. or trader	personal visit	Radio / TV/news paper	Information from neighbor	Local trader	Any other
Marginal	1	8	9	6	5	-
Small	1	7	8	7	5	2
Semi medium	1	8	8	6	4	3
Medium	2	8	5	9	7	1
Large	-	6	5	5	4	2
Total	5	37	35	33	25	8

In Indore district like in Balaghat district personal visit was the most important source. The second source in importance was information provided by neighbour. The third important source was radio/ T.V./ newspaper. As in Balaghat district fourth source was local trader (Table 4.40).

Table 4.40 Number of farmers replying about channels of price signals, district Indore

Size group	Message given by c.a. or trader	personal visit	Radio / TV/news paper	Information from neighbor	Local trader	Any other
Marginal	-	10	7	11	3	1
Small	2	8	6	10	6	3
Semi medium	4	9	8	7	6	2
Medium	1	7	7	8	8	2
Large	-	9	10	3	3	2
Total	7	43	38	39	26	10

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CHAPTER – V

MARKETING OF COMMODITIES

5.1 Marketed Surplus and its Share in the Output

In Balaghat district the per farm production of paddy was 82.05 quintals. Of this quantity 70.91 per cent was marketed. The percentage of quantity marketed increased with the increase in size of holdings. Thus the percentage of marketed surplus in the marginal size group was 50.25. It gradually increased and was 78.89 per cent in the large size group of holdings (Table 5.1).

Table 5.1 Percentage of marketed surplus to total production of paddy in district Balaghat

Size group	Total product (Qtls)	Marketed surplus	
		Quantity (Qtls)	Percentage of marketed surplus to total produce
Marginal	16.42	8.25	50.25
Small	35.00	20.54	58.69
Semi medium	70.67	44.92	63.56
Medium	115.66	81.08	70.10
Large	172.50	136.08	78.89
Total	82.05	58.18	70.91

In the case of wheat in Indore district the production per farm was 41.79 quintals. Of this quantity 25.63 quintals or 61.33 per cent was marketed. It was noted that the percentage of quantity marketed to quantity produce was higher on the larger farms. It was noted that while the percentage of marketed quantity was 52.29 on marginal farms, it was 66.54 on the large size farms. It was also noted that production per farm increased with the size of holdings (Table 5.2).

Table 5.2 Percentage of marketed surplus to total production of wheat in district Indore

Size group	Total production (Qtls)	Marketed surplus	
		Quantity (Qtls)	Percentage of marketed surplus to total production
Marginal	10.04	5.25	52.29
Small	22.83	11.92	52.21
Semi medium	34.67	20.51	59.16
Medium	49.25	29.17	59.23
Large	92.17	60.33	66.54
Total	41.79	25.63	61.33

5.2 Role of Purchasing Agencies

In Balaghat district, of the total quantity of 58.18 quintals of paddy per farm more than 95 per cent (96.72) was sold to government agencies and only 3.28 per cent was sold to private traders. In the marginal size group the percentage of quantity sold to government agencies was 97.94. In the semi medium size group the percentage of quantity sold to govt. agencies was 79.21. In the remaining size groups of small, medium and large the entire quantity was sold to govt. agencies only (Table 5.3).

Table 5.3 Quantities of paddy per farm sold to different agencies, Balaghat district

Size group	Government agencies		Private traders		Total quantity sold
	Quantity (Qtls)	Percentage to total quantity sold	Quantity (Qtls)	Percentage to total quantity sold	
Marginal	8.08	97.94	0.17	2.06	8.25
Small	20.54	100.00	-	-	20.54
Semi medium	35.58	79.21	9.34	20.79	44.92
Medium	80.08	100.00	-	-	81.08
Large	136.08	100.00	-	-	136.08
Total	56.27	96.72	1.91	3.28	58.18

As regards sale of wheat in Indore district it was noted that 97.35 per cent of the produce was sold to government agencies and the remaining quantity (2.65 per cent) was sold to the private traders. In the case of large farmers the entire quantity was sold to government agencies. There was no significant relationship between the size of holdings and the percentage of produce sold to the government agencies. The marketed surplus per farm increased with the size of holdings (Table 5.4).

Table 5.4 Quantities of wheat per farm sold to different agencies, Indore district

Size group	Government agency		Private trader		Total
	Quantity	Percentage to total quantity sold	Quantity	Percentage to total quantity sold	
Marginal	5.08	96.76	0.17	3.24	5.25
Small	11.09	93.04	0.83	6.96	11.92
Semi medium	18.58	90.63	1.92	9.37	20.50
Medium	28.67	98.29	0.50	1.71	29.17
Large	61.33	100.00	-	-	61.33
Total	24.95	97.35	0.68	2.65	25.63

5.3 Sale of Crops in Different Months

In the previous paragraphs we have observed that most of the quantities were sold to government agencies and very small quantity was sold to private traders. In this section we will note the spread of sale in different months of the year.

In the case of paddy in Balaghat district the sale started in the month of October and continued till March. The maximum sale was noted in the month of January. It was also observed that the second phase of sale took place in the months of May, June and July although the quantity in the second phase was small. It was also noted that marginal and small size groups sold the entire quantity between October and March. Only semi medium, medium and large farmers sold some quantity in the second phase. January seemed to be the most busy month for farmers with regard to sale of paddy (Table 5.5).

Table 5.5 Quantity of paddy sold per farm in different months, Balaghat district, 2001-2002

(Unit-quintals)

Size group	October	November	December	January	February	March	April	May	June	July	August	September	Total
Marginal	-	5.59 (67.64)	0.42 (5.09)	1.00 (12.12)	0.33 (4.00)	0.92 (11.15)	-	-	-	-	-	-	8.25 (100.00)
Small	2.23 (11.34)	1.25 (6.09)	2.08 (10.13)	9.96 (48.49)	3.42 (16.65)	1.50 (7.30)	-	-	-	-	-	-	20.54 (100.00)
Semi medium	6.25 (13.91)	-	4.42 (9.84)	16.83 (37.47)	5.33 (11.80)	2.50 (5.57)	-	-	2.92 (6.50)	6.67 (14.85)	-	-	44.92 (100.00)
Medium	-	32.17 39.68	-	34.08 (42.03)	6.50 (8.02)	-	-	8.33 (10.27)	-	-	-	-	81.08 (100.00)
Large	12.50 (9.19)	-	-	97.50 (71.65)	9.83 (7.22)	8.33 (6.12)	-	7.92 (5.82)	-	-	-	-	136.08 (100.00)
Total	4.22 (7.25)	7.80 (13.41)	1.38 (2.38)	31.88 (54.79)	2.65 (4.55)	5.08 (8.73)	-	3.26 (5.60)	0.58 (1.00)	1.33 (2.29)	-	-	58.18 (100.00)

Figures in parentheses denote percentages

In the case of wheat in Indore district the sales started from the month of April and lasted till the month of October. It was also noted that the majority of the sales took place during the months of April, May and June. In this crop also there was a second phase in the months of August, September and October. But this could be afforded by only medium and large farmers. Other size groups of farmers disposed of the total quantity in the months of April, May and June. On an average farm the highest quantity of 38.61 per cent was sold in the month of April and 36.67 per cent in the month of May (Table 5.6).

Table 5.6 Quantity of wheat sold per farm in different months, Indore district, 2001-2002

(Unit-quintals)

Size group	October	November	December	January	February	March	April	May	June	July	August	September	Total
Marginal	-	-	-	-	-	-	2.67 (50.86)	1.50 (28.57)	1.08 (20.57)	-	-	-	5.25 (100.00)
Small	4.42 (3.52)	-	-	-	-	-	4.17 (34.98)	4.00 (33.56)	3.33 (27.94)	-	-	-	11.92 (100.00)
Semi medium	-	-	-	-	-	-	-	17.26 (84.15)	3.25 (15.85)	-	-	-	20.51 (100.00)
Medium	-	-	-	-	-	-	15.76 (54.03)	5.08 (17.41)	2.92 (10.01)	-	2.08 (7.13)	3.33 (11.42)	29.17 (100.00)
Large	3.33 (5.43)	-	-	-	-	-	26.92 (43.89)	19.17 (31.25)	10.42 (16.98)	1.50 (2.45)	-	-	61.34 (100.00)
Total	0.75 (2.93)	-	-	-	-	-	9.90 (38.61)	9.40 (36.67)	4.20 (16.38)	0.30 (1.17)	0.42 (1.64)	0.67 (2.60)	25.63 (100.00)

Figures in parentheses denote percentages

5.4 Prices of Paddy and Wheat in Different Months

In the case of Balaghat district the price of paddy was minimum in the month of February. It was also lower in the month of January. From the month of March onwards the price started increasing and was quite high in the month of May, June and July. There seems to be corelation between the quantity sold in different months and the price of the produce. Thus December and January which were the months in which the majority of the sales took place also experienced lower price of paddy. On the other hand in the months of May, June and July when the sales went down the price increased (Table 5.7).

Table 5.7 Monthwise price of paddy, Balaghat district, 2001-2002

(Unit-Rs. Per quintal)

Size group	October	November	December	January	February	March	April	May	June	July	August	September
Marginal	-	519	515	537	500	700	-	-	-	-	-	-
Small	620	550	570	472	350	450	-	-	-	-	-	-
Semi medium	540	-	600	586	550	590	-	-	600	716	-	-
Medium	-	602	-	517	600	-	-	700	-	-	-	-
Large	640	-	-	577	490	-	-	717	-	-	-	-
Total	600	557	512	537	498	580	-	708	600	716	-	-

In the case of wheat in Indore district the price varied between Rs.541 to 725 in different months. It was observed earlier that the majority of sales took place in the months of April, May and June and to a small extent in the month of July. In this context it was observed that the price of wheat was comparatively lower in the peak sale season of April, May and June. Thereafter the price gradually started increasing. Thus the phenomenon of more sales and lesser price and lower sales and more price was observed in wheat also (Table 5.8).

Table 5.8 Monthwise price of wheat, Indore district, 2001-2002

(Unit-Rs. Per quintal)

Size group	October	November	December	January	February	March	April	May	June	July	August	September	Average
Marginal	-	-	-	-	-	-	525	575	520	--	--	--	554
Small	-	-	-	-	-	-	575	625	540	--	--	--	580
Semi medium	-	-	-	-	-	-	750	605	597	--	--	--	651
Medium	-	-	-	-	-	-	595	655	530	530	725	610	608
Large	-	-	-	-	-	-	643	658	520	560	--	--	595
Total	-	-	-	-	-	-	618	624	541	545	725	610	598

5.5 Per quintal Cost on Transport and Other Items

In the case of paddy in Balaghat district the cost per quintal on transport charges, loading and unloading charges, cleaning charges and other expenses came to Rs.10.94. Of these expenses transport charges were most important and formed 43.15 per cent. The next important item was loading and unloading and formed 28.70 per cent. Cleaning charges formed 17.64 per cent and other expenses, 10.51 per cent. The per quintal charges had no definite relationship with size of holdings but were higher on medium and large farms. It was observed that the importance of different charges was similar in different size of holdings. Thus transport charges were most important followed by loading and unloading charges in all the size groups (Table 5.9).

Table 5.9 Per quintal cost of paddy on transport and other items, district Balaghat 2001-2002

(Charges - Rs/quintal)

Size group		Transport charges	Loading /unloading charges	Cleaning charges	Other expenses	Total cost per quintal
Marginal	**Rs.**	1.97	1.50	0.99	1.29	5.75
	Percentage to total	(34.26)	(26.09)	(17.22)	(22.43)	(100.00)
Small	**Rs.**	3.57	3.66	1.74	1.21	10.18
	Percentage to total	(35.07)	(35.95)	(17.09)	(11.89)	(100.00)
Semi medium	**Rs.**	3.82	1.95	1.25	0.84	7.86
	Percentage to total	(48.60)	(24.81)	(15.90)	(10.69)	(100.00)
Medium	**Rs.**	3.39	3.67	2.75	1.21	11.02
	Percentage to total	(30.76)	(33.30)	(24.96)	(10.98)	(100.00)
Large	**Rs.**	6.45	3.23	1.76	1.19	12.33
	Percentage to total	(49.88)	(26.20)	(14.27)	(9.65)	(100.00)
Total	**Rs.**	4.72	3.14	1.93	1.15	10.94
	Percentage to total	(43.15)	(28.70)	(17.64)	(10.51)	(100.00)

Figures in parentheses denote percentages

In the case of wheat in Indore district the average cost per quintal was Rs.13.23. Of the items of cost, as in the case of Balaghat district transport charges was most important constituting 60.01 per cent. The second item of importance was also, as in the case of Balaghat district, loading and unloading charges. Cleaning charges were third important and formed 10.58 per cent. The importance of different items of cost was similar in all the size groups. The total cost per quintal had no relationship with the size of holdings. The cost varied from Rs.6.59 in the largest size group to Rs.25.51 in the small size group (Table 5.10).

Table 5.10 Per quintal cost on transport and other items wheat, Indore district,2001-2002

(Charges - Rs/quintal)

Size group		Transport charges	Loading /unloading charges	Cleaning charges	Other expenses	Total cost per ha.
Marginal	**Rs.**	9.11	3.10	1.23	0.33	13.77
	Percentage to total	(66.16)	(22.51)	(8.93)	(2.40)	(100.00)
Small	**Rs.**	18.72	5.60	1.04	0.15	25.51
	Percentage to total	(73.38)	(21.95)	(4.08)	(0.59)	(100.00)
Semi medium	**Rs.**	10.23	3.51	0.78	0.20	14.72
	Percentage to total	(69.50)	(23.85)	(5.29)	(1.36)	(100.00)
Medium	**Rs.**	12.79	5.01	3.20	0.62	21.62
	Percentage to total	(59.16)	(23.17)	(14.80)	(2.87)	(100.00)
Large	**Rs.**	2.94	2.52	0.83	0.30	6.59
	Percentage to total	(44.61)	(38.24)	(12.60)	(4.55)	(100.00)
Total	**Rs.**	7.94	3.54	1.40	0.35	13.23
	Percentage to total	(60.01)	(26.76)	(10.58)	(2.65)	(100.00)

Figures in parentheses denote percentages

5.6 The Reasons for Sale to Government Agencies

The farmers' opinions about sales to government agencies were noted. On all counts, such as better price, quick disposal, correct weighing, immediate payment and help in purchase the government agencies proved to have impressed the selected farmers. It was noted that all the farmers preferred to sell the produce to government agencies because of better price. The other impressive reason was correct weighment. Quick disposal and immediate payment were third and fourth important reasons (Table 5.11).

Table 5.11 Number of farmers giving advantages in sales of paddy to government agencies, Balaghat district, 2001-2002

Size group	Better price	Quick disposal	Correct weighment	Immediate payment	Help in purchase
Marginal	7	5	7	5	2
Small	7	6	6	5	2
Semi medium	10	5	5	3	2
Medium	9	6	9	3	2
Large	9	5	4	5	1
Total	42	27	31	21	9

In the case of wheat in Indore district similar opinions were expressed by the selected farmers. Farmers put better price as the first important reason. The second important reason for them was quick disposal. The third reason was immediate payment and the fourth one was correct weighment. The farmers' choice of reasons was similar in different size group with some variation (Table 5.12).

Table 5.12 Number of farmers giving advantages in sales of wheat to government agencies, Indore district, 2001-2002

Size group	Better price	Quick disposal	Correct weighment	Immediate payment	Help in purchase
Marginal	7	7	7	6	2
Small	6	7	5	7	2
Semi medium	8	7	6	6	1
Medium	5	5	5	4	2
Large	7	6	1	5	1
Total	33	32	24	28	8

5.7 Farmers Preference For Purchasing Agencies

In Balaghat district for paddy purchase the only agency was the district central cooperative marketing society. All the selected farmers sold the produce to this agency only. So there was no question of farmers preference for different agencies (Table 5.13).

Table 5.13 Number of farmers showing preference for selling paddy, Balaghat district

Size group	District cooperative marketing society	Total
Marginal	12	12
Small	12	12
Semi medium	12	12
Medium	12	12
Large	12	12
Total	60	60

In the case of wheat in Indore district eighty percent of the farmers sold their produce to the district central cooperative marketing society. Only twenty per cent farmers sold their produce to private traders. Among different size groups the percentage of farmers selling their produce to private traders was highest (33.33 per cent) in marginal size group. The lowest percentage (8.33) of such farmers was observed in semi medium size group. However, the percentage of farmers selling the produce to district central cooperative marketing society or private traders had no direct relationship with the size of holdings (Table 5.14).

Table 5.14 Number of farmers showing preference for selling wheat, Indore district

Size group	District cooperative marketing society	Private trader	Total
Marginal	8	4	12
Small	10	2	12
Semi medium	11	1	12
Medium	9	3	12
Large	10	2	12
Total	48	12	60

5.8 Reasons for Not Selling the Produce to Private Traders

In the case of paddy in Balaghat district 16.67 per cent farmers gave the reason of lower price offered by private traders. Another 16.67 per cent commented that the sale value for their product was received late. The remaining 66.67 per cent farmers narrated that both the reasons of lower price and delay in payment were the reasons for their not selling the produce to private traders (Table 5.15).

Table 5.15 Number and percentage of farmers giving reply regarding private traders, paddy, Balaghat district

Size group	Offer lower price than state agency	Delay in payment	Both lower price and delay in payment	Total
Marginal	4	1	7	12
Small	1	2	9	12
Semi medium	-	3	9	12
Medium	2	3	7	12
Large	3	1	8	12
Total	10	10	40	60

In the case of wheat in Indore district the two reasons given by the farmers for not selling the produce to private traders were lower price offered and delay in payment. Some farmers put forth that both these reasons applied in their cases. It was noted that 41.67 per cent farmers gave the reason of lower price and 8.33 per cent gave the reason of delay in payment. The remaining fifty per cent farmers said that in their cases both the reasons applied. It was surprising that marginal and small farmers did not put forward the reason of delay in payment. On the whole most of the farmers gave both the reasons of lower price as well as delay in payment for not selling the produce to private traders (Table 5.16).

Table 5.16 Number of farmers giving reasons for not selling the produce to private traders, wheat, Indore district

Size group	Offer lower price than state agency	Delay in payment	Both lower price and delay in payment	Total
Marginal	7	-	5	12
Small	6	-	6	12
Semi medium	2	2	8	12
Medium	6	1	5	12
Large	4	2	6	12
Total	25	5	30	60

5.9 Changes in Price and Payment Desired by Farmers from Private Traders

In Balaghat district for paddy 16.67 per cent farmers wanted higher price from private traders. The remaining 83.33 per cent farmers wished that the payment should be made as soon as the produce is purchased by the traders (Table 5.17).

Table 5.17 Type of change in price and payment desired by farmers from private traders, paddy, Balaghat, district

Size group	Change in price	Change in payment
Marginal	4	8
Small	1	11
Semi medium	-	12
Medium	2	10
Large	3	9
Total	10	50

In Indore district for wheat those who complained about traders paying less price suggested that they should pay higher price. Similarly those who complained that traders delayed the payment suggested that they should make the payment immediately (Table 5.18).

Table 5.18 Type of changes in price and payment desired by farmers from private traders, wheat, Indore, district

Size group	Change in price	Change in payment
Marginal	7	5
Small	6	6
Semi medium	2	10
Medium	6	6
Large	4	8
Total	25	35

5.10 Farmers' Opinions about Institutional Credit and Pledge Financing

In Balaghat district of the total paddy growing farmers 38.33 per cent agreed that due to institutional credit available they could delay the sale of produce. The remaining 61.67 per cent farmers did not delay the sale. Those delaying the sale delayed by one to three

months. There was no difference in period of delaying in the different size of holdings. To the question whether they would like to avail the facility of pledge financing only 8.33 per cent replied in the affirmative. The reasonable rate of interest desired by them varied from 2 to 7 per cent. The remaining 91.67 per cent did not show any interest in pledge financing (Table 5.19).

Table 5.19 Number of farmers giving opinion on institutional credit and pledge financing, paddy, Balaghat district

Size group	With the availability of institutional credit, had you delayed your sale			Would you like to avail the facility of pledge financing		
	Yes	No	If yes how many months	Yes	No	If yes how many months
Marginal	6	6	4-2 Months 2-3 Months	-	12	-
Small	5	7	1-1 Months 1-1 Months	-	12	-
Semi medium	3	9	3-3 Months	2	10	1-5% 1-7%
Medium	3	9	1-2 Months 2-3 Months	-	12	-
Large	6	6	2-2 Months 4-3 Months	3	9	1-2% 1-5% 1-6%
Total	23 (38.33)	37 (61.67)	1-1 Months 8-2 Months 14-3 Months	5	55	1-2% 2-5% 1-6% 1-7%

In Indore district of the sixty wheat growing farmers 40.00 per cent commented that due to institutional credit they delayed the sale of produce. The period of delay varied from seven days to six months. About the facility of pledge financing 28.33 per cent expressed that they would like to avail it. The desired rate of interest was between four to seven per cent (Table 5.20).

Table 5.20 Number of farmers giving opinion on institutional credit and pledge financing, wheat, Indore district

Size group	With the availability of institutional credit, had you delayed your sale			Would you like to avail the facility of pledge financing		
	Yes	No	If yes how many months	Yes	No	If yes how many months
Marginal	4	8	3-1 Months 1-7 Days	1	11	4%
Small	4	8	1-2 Months 1-2 Months 1-3 Months	3	9	4% 5% 7%
Semi medium	5	7	1-20 Days 2-1 Months 3-3 Months 1-6 Months	2	10	5% 7%
Medium	6	6	2-1 Months 2-2 Months 2-3 Months	6	6	5% 6% 7%
Large	5	7	1-1 Months 1-2 Months 3-3 Months	5	7	5% 6% 7%
Total	24 (40.00)	36 (60.00)	1-7 Days 1-20 Days 10-1 Months 4-2 Months 7-3 Months 1-6 Months	17 (28.33)	43 (71.67)	

5.11 Farmers Opinion Regarding Collusion between Officials and Commission Agents

In Balaghat district the paddy growing farmers did agree that there was some collusion between officials and commission agents. The collusion with regard to price fixation was noted by 6.67 per cent farmers. With regard to grading 18.33 per cent farmers accepted that there was collusion in grading of quality. As regard collusion with regard to bidding 13.33 per cent farmers agreed that there was some such collusion (Table 5.21).

Table 5.21 Number of farmers replying about collusion between officials of purchasing agency or purchaser and commission agent, paddy, Balaghat district

Size group	Price fixation		Grading quality		Weighment		Payment		Collusion in Bidding	
	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No
Marginal	1	11	1	11	-	12	-	12	-	12
Small	-	12	2	10	1	11	-	12	1	11
Semi medium	1	11	2	10	-	12	-	12	2	10
Medium	1	11	1	11	-	12	1	11	2	10
Large	1	11	5	7	-	12	-	12	3	9
Total	4 (6.67)	56 (93.33)	11 (18.33)	49 (81.67)	1 (1.67)	59 (98.33)	1 (1.67)	59 (98.33)	8 (13.33)	52 (86.670

In Indore district the selected farmers opined that the collusion existed in different operations. In the case of price fixation 23.33 per cent farmers agreed that there was such collusion. In grading quality the collusion was accepted by 23.33 per cent farmers. Collusion in bidding was noted by 20.00 per cent of the selected farmers (Table 5.22).

Table 5.22 Number of farmers replying about collusion between officials of purchasing agency or purchaser and commission agent, wheat, Indore district

Size group	Price fixation		Grading quality		Weighment		Payment		Collusion in Bidding	
	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No
Marginal	5	7	5	7	-	12	-	12	2	10
Small	2	10	2	10	-	12	-	12	1	11
Semi medium	2	10	2	10	1	11	1	11	3	9
Medium	1	11	1	11	-	12	-	12	2	10
Large	4	8	4	8	-	12	-	12	4	8
Total	14 (23.33)	46 (76.67)	14 (23.33)	46 (76.67)	1 (1.67)	59 (98.33)	1 (1.67)	59 (98.33)	12	48 (100.00)

5.12 Destruction of Produce Due to Low Price Offered and Recourse to Distress Sale

In Balaghat district none of the selected farmers destroyed or burnt his produce due to sudden lowering of the price. However 6.67 per cent farmers sold their produce at throw away prices as they were in dire need of money for personal reasons (Table 5.23}.

Table 5.23 Number of farmers replying about destroying /burning /throwing away produce in the case of abrupt low price and taking recourse to distress sale, paddy, Balaghat district

Size group	Destroying/burning/throwing					Recourse to distress sale		
	Yes	No	crop	quantity	year	Yes	No	If yes, reasons
Marginal	-	12	-	-	-	2	10	1-need of money , 2- marriage of daughter
Small	-	12	-	-	-	-	12	-
Semi medium	-	12	-	-	-	-	12	-
Medium	-	12	-	-	-	-	12	-
Large	-	12	-	-	-	2	10	2-need of money
Total	-	60	-	-	-	4 (6.67)	56 (93.33)	

In Indore district none of the farmers destroyed or burnt the crop due to sudden fall in the prices. However 11.67 per cent farmers commented that they took recourse to distress sale as they needed money for personal reasons (Table 5.24).

Table 5.24 Number of farmers replying about destroying /burning /throwing away produce in the case of abrupt low price and taking recourse to distress sale, wheat, Indore district

Size group	Destroying/burning/throwing					Recourse to distress sale		
	Yes	No	crop	quantity	year	Yes	No	If yes, reasons
Marginal	-	12	-	-	-	3	9	1-need of money
Small	-	12	-	-	-	-	12	-
Semi medium	-	12	-	-	-	-	12	-
Medium	-	12	-	-	-	-	12	-
Large	-	12	-	-	-	4	8	4-need of money
Total		60		-	-	7 (11.67)	53 (88.33)	

5.13 Difficulties faced in Selling the Produce to Different Agencies

The main agencies purchasing the produce were village traders, traders in local markets, traders in wholesale markets and government agencies. The difficulties faced by farmers in selling to different agencies were somewhat similar but at times peculiar to the concerned agencies.

In Balaghat district the most common difficulty faced in selling to village traders was that the village traders offered lower price. The second important reason was uncertainty in the traders purchasing capacity. The most important difficulty in selling the produce in the local market was again offering of lower prices by the traders. The second important reason was that the payment to the farmers was effected only after selling of the stock by the traders. In the case of sale in wholesale market the reason was that the prices fetched were quite lower. The second reason was that the traders in the wholesale market being wholesale traders were not interested in the purchase of small quantities.

Table 5.25 Types of difficulties (coded) faced by sample farmers in selling their produce (paddy) to different agencies/markets, Balaghat district

Size group	Village Trader (VT)		Local Market (LM)		Whole sale Market (WM)		Public Agencies(PA)	
	Difficulties	No. of farmers replied	Difficulties	No. of farmers replied	Difficulties	No. of farmers replied	Difficulties	No. of farmers replied
Marginal (12)	VT-1 VT -2	11(18.33) 1(1.67)	LM-1 LM-2 LM-2	11(18.33) 4(6.67) 1(1.67)	WM-1 WM-2 WM-3 WM-4	2(3.33) 5(8.33) 2(3.33) 3(5.00)	PA-3 PA-1 PA-2 PA-4	4(6.67) 7(11.67) 5(8.33) 3(5.00)
Small (12)	VT -1 VT -3	9(15.00) 3(5.00)	LM-1 LM-3	9(15.00) 3(5.00)	WM-1 WM-2 WM-3 WM-4	5(8.33) 3(5.00) 4(6.67) 3(5.00)	PA-1 PA-2 PA-3	2(3.33) 6(10.00) 4(6.67)
Semi medium (12)	VT -1 VT -2 VT -3	7(11.66) 4(6.67) 1(1.67)	LM-1 LM-2 LM-3	6(10.00) 5(8.33) 4(6.67)	WM-2 WM-3 WM-4	4(6.67) 6(10.00) 4(6.670	PA-1 PA-4 PA-3	12(20.00) 5(8.33) 5(8.33)
Medium (12)	VT -1 VT -2	7(11.67) 5(8.33)	LM-1 LM-3	7(11.67) 5(8.33)	WM-3 WM-5	10(16.67) 5(8.33)	PA-1 PA-2 PA-4	7(11.67) 3(5.00) 5(8.33)
Large (12)	VT -1 VT -2	10(16.67) 2(3.33)	LM-1 LM-3	10(16.67) 3(5.00)	WM-3 WM-5	9(15.00) 5(8.33)	PA-1 PA-2 PA-4	4(6.67) 8(13.33) 3(5.00)
Total (60)	VT -1 VT -2 VT -3	44(73.33) 12(20.00) 4 (6.67)	LM-1 LM-2 LM-3	43(71.67) 9(15.00) 16(26.67)	WM-1 WM-2 WM-3 WM-4 WM-5	11(18.33) 12(20.00) 31(91.67) 10(16.67) 10(16.67)	PA-1 PA-2 PA-3 PA-4	32(53.33) 22(36.67) 13(21.67) 16(26.67)

Village Trader	Local Market	Wholesale Market	Public Agencies
VT-1 offer lower price VT-2 Uncertainty in selling VT-3 some times makes payment after selling of paddy	LM-1 offer lower price LM-2 Uncertainty in selling LM-3 sometimes makes payment after selling of paddy	WM-1 sometimes makes payment after selling of paddy WM-2 do not wish to purchase in smaller quantity WM-3 offer lower price WM-4 problem of transportation WM-5 more number of middle man	PA-1 problem related to time PA-2 problem of Transportation PA-3 do not wish to purchase in smaller quantity PA-4 uncertainty in selling

In the case of wheat selling farmers of Indore district the main difficulty faced in selling to the village trader was lower price offered. The second reason was uncertainty in selling and the third reason was the delayed payment as the village traders preferred to make the payment only after disposal of the produce with them. In the case of local market again the main difficulty was offering of lower price. The second important reason was uncertainty in selling. In the case of sale in the wholesale market the main reason was the delayed payment.

The second important reason was that the traders in the wholesale market showed no interest in the purchase of the smaller quantities. The third reason was the offering of lower prices by the traders. As far as sale to the government agency the main problem related to the time. The second important reason was problem of transportation as the purchase centres were not located in the remote and interior areas of the district. The fourth reason was that the farmers some times did not know whether on a particular day the purchase would be made (Table 5.26).

Table 5.26 Types of difficulties (coded) faced by sample farmers in selling their produce (wheat) to different agencies/markets, Indore district

Size group	Village Trader (VT)		Local Market (LM)		Whole sale Market (WM)		Public Agencies(PA)	
	Difficulties	No. of farmers replied	Difficulties	No. of farmers replied	Difficulties	No. of farmers replied	Difficulties	No. of farmers replied
Marginal (12)	VT-1 VT -2 VT -3	7(11.67) 3(5.00) 2(3.33)	LM-1 LM-2 LM-3	8(13.23) 3(15.00) 2(3.33)	WM-1 WM-2 WM-3 WM-4	7(11.67) 6(10.00) 2(3.33) 2(3.33)	PA-1 PA-2 PA-3 PA-4 PA-5	6(10.00) 3(5.00) 2(3.33) 2(3.33) 1(1.67)
Small (12)	VT -1 VT -2 VT -3	8(13.33) 4(6.67) 2(3.33)	LM-1 LM-2 LM-3	6(10.00) 4(6.67) 3(5.00)	WM-1 WM-2 WM-3 WM-4	6(10.00) 5(8.33) 2(3.33) 2(3.33)	PA-1 PA-2 PA-3 PA-4 PA-5	7(11.67) 4(6.67) 3(5.00) 2(3.33) 2(3.33)
Semi medium (12)	VT -1 VT -2 VT -3	9(15.00) 4(6.67) 2(3.33)	LM-1 LM-2 LM-3	8(13.33) 5(8.33) 2(3.33)	WM-1 WM-2 WM-3 WM-4	8(13.33) 3(5.00) 3(5.00) 1(1.67)	PA-1 PA-2 PA-3 PA-4 PA-5	6(10.00) 4(6.67) 2(3.33) 2(3.33) 1(1.67)
Medium (12)	VT -1 VT -2 VT -3	8(13.33) 5(8.33) 3(5.00)	LM-1 LM-2 LM-3	9(15.00) 3(5.00) 2(3.33)	WM-1 WM-2 WM-3 WM-4	7(11.67) 3(5.00) 4(6.67) 3(5.00)	PA-1 PA-2 PA-3 PA-4 PA-4	6(10.00) 3(5.00) 3(5.00) 2(3.33) 1(1.67)
Large (12)	VT -1 VT -2 VT -3	9(15.00) 3(5.00) 3(5.00)	LM-1 LM-2 LM-3	6(10.00) 4(6.67) 3(5.00)	WM-1 WM-2 WM-3 WM-4	8(13.33) 6(10.00) 2(3.33) 1(1.67)	PA-1 PA-2 PA-3 PA-4 PA-5	8(13.33) 4(6.67) 2(3.33) 2(3.33) 1(1.67)
Total (60)	VT -1 VT -2 VT -3	41(68.33) 19(31.67) 12(20.00)	LM-1 LM-2 LM-3	37(61.67) 19(31.67) 12(20.00)	WM-1 WM-2 WM-3 WM-4	36(60.00) 23(38.33) 13(21.67) 9(15.00)	PA-1 PA-2 PA-3 PA-4 PA-5	33(55.00) 18(30.00) 12(20.00) 10(16.67) 6(10.00)

Village Trader	Local Market	Wholesale Market	Public Agencies
VT-1 Offer lower price VT-2 Some times makes payment after selling of wheat VT-3 Faulty weighting	LM-1 Offer lower price LM-2 Uncertainty in selling LM-3 Sometimes makes payment after selling of wheat	WM-1 Price fix on the basis of auction WM-2 High transportation charges WM-3 Do not wish to purchase in smaller quantity WM-4 Some times offer lower price than minimum support price	PA-1 price fixed on the basis of grading PA-2 Some time delay in payment PA-3 Transportation cost high PA-4 Problem related to time PA-5 Do not wish to purchase in smaller quantity

5.14 Effect of Prices on Crop Area and Technology

In Balaghat district the farmers response to higher prices of produce seemed positive. More than 70 (73.33) per cent farmers said that they would change the area under the crop in response to prices of produce. Another 68.33 per cent farmers said that they would adopt improved technology and another 26.67 per cent farmers commented that they would make intensive use of inputs (Table 5.27).

Table 5.27 Farmers response to change in prices on cropping pattern and production, Balaghat district

Size group	Change in Area	Adoption of Improved Technology	Intensive Input use
Marginal	06	11	02
Small	10	08	03
Semi- medium	10	06	02
Medium	08	09	03
Large	10	07	06
Total	44 (73.33)	41 (68.33)	16 (26.67)

Figures in parenthesis indicate the percentage to total

In Indore district 65.00 per cent farmers said that with the increase in price they might increase the area of the crop which fetched them higher price. An equal percentage of farmers said that they would adopt improved technology for the crop which would give them higher price. Another 36.67 per cent farmers opined that with the increased price of a crop more intensive use of inputs would be made in that crop (Table 5.28).

Table 5.28 Farmers response to change in prices on cropping pattern and production, Indore district

Size group	Change in Area	Adoption of Improved Technology	Intensive Input use
Marginal	07	05	01
Small	07	11	06
Semi- medium	11	06	06
Medium	09	08	05
Large	05	09	04
Total	39 (65.00)	39 (65.00)	22 (36.67)

Figures in parenthesis indicate the percentage to total

5.15 Sources of Information on Technological Changes

In agriculture like any other industry research findings on various aspects of crop production are disseminated by the scientists. At the field level the information on these is given to the farmers by agricultural extension officers posted in the district and level below. They visit villages and organize meetings of farmers to impart technological knowledge in agriculture to the farmers. Besides extension officials the knowledgeable persons like village sarpanch, village teacher and gram sevak also gave the information to the farmers. Audio visual aids like radio and T.V. play important role.

In Balaghat district the most important source was block authorities who were responsible to the extent of 88.33 per cent of the selected farmers in giving the information. Village sarpanch and neighbourers disseminated the knowledge to 51.67 per cent each. The different agencies which canvass the inputs in the agriculture helped in giving knowledge to 50.00 per cent of the farmers (Table 5.29).

Table 5.29 Sources of Information on Technological changes, Balaghat district

Size group	Through block Authorities	Through village sarpanch	Through neighbours	Through input marketing agencies
Marginal	11	06	05	05
Small	11	08	05	07
Semi- medium	10	06	06	04
Medium	09	08	08	08
Large	12	03	07	06
Total	53	31	31	30
Percentage	88.33	51.67	51.67	50.00

In Indore district also the most important source of information was block authorities who gave technical knowledge to 81.67 per cent of the selected farmers. The next important source was neighbourers who helped in giving knowledge to 61.67 per cent of the farmers. Village sarpanch provided information to 45.00 per cent of the selected farmers and inputs supplying agencies gave knowledge to 36.67 per cent of the selected farmers (Table 5.30).

Table 5.30 Sources of Information on Technological changes, Indore district

Size group	Through block Authorities	Through village sarpanch	Through neighbourers	Through input marketing agencies
Marginal	11	05	07	03
Small	11	07	07	05
Semi- medium	08	05	09	05
Medium	10	03	08	05
Large	09	07	06	04
Total	49	27	37	22
Percentage	81.67	45.00	61.67	36.67

5.16 Farmers' Views about Selling the Produce Outside the State and Knowledge of Restriction on Movement to Other States.

In Balaghat district none of the selected farmers sold his produce outside the state. They also commented that there was no restriction in selling the produce outside the state (Table 5.31).

Table 5.31 Views of farmers about selling their produce out side the state and restrictions on movement to other states, Balaghat district

Size group	Whether sold outside state			Whether restriction on movement to other state		
	Yes	No	If yes Name of commodities	Yes	No	If yes Name of commodities
Marginal	--	12	--	--	12	--
Small	--	12	--	--	12	--
Semi-medium	--	12	--	--	12	--
Medium	--	12	--	--	12	--
Large	--	12	--	--	12	--
Total	--	60	--	--	60	--

In Indore district also none of the selected farmers sold his produce outside the state. The farmers also had information that there was no restriction on selling the produce outside the state (Table 5.32).

Table 5.32 Views of farmers about selling their produce out side the state and restrictions on movement to other states, Indore district

Size group	Whether sold outside state			Whether restriction on movement to other state		
	Yes	No	If yes Name of commodities	Yes	No	If yes Name of commodities
Marginal	--	12	--	--	12	--
Small	--	12	--	--	12	--
Semi-medium	--	12	--	--	12	--
Medium	--	12	--	--	12	--
Large	--	12	--	--	12	--
Total	--	60	--	--	60	--

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CHAPTER – VI

SOME OBSERVATIONS AND POLICY IMPLICATIONS

6.1 What is state Intervention in Marketing

The state intervention is through restrictions on marketing, storage and movement of grains and fixation of minimum support prices, storage and distribution on public account. The restrictions on marketing were put by regulation of markets. This was done with a view to protect the farmers from exploitation of traders. As regards godowns, warehouses were built in public sector and cooperative sector and the private sector was encouraged to do so. In the case of movement of grains some restrictions had to be imposed when there was acute shortage of foodgrains in some areas. Similarly when there was food deficit in the country procurement prices were fixed to- 1. give incentive to farmers to produce more, 2. purchase adequate quantity of foodgrains for buffer stock and 3. implement public distribution system. Later fixation of procurement price was discontinued and minimum support prices were fixed. These were higher than the market prices.

6.2 Effects of State Intervention in Marketing

1. The farmers were benefitted as they were protected from exploitation. They also got higher price than the market price and whatever they produced was procured by government agencies. Increasing MSP from year to year and assured procurement have narrowed the gap between MSP and wholesale and farm harvest prices.

2. The role of private trade has been reduced

3. Income of the farmers has increased and this has resulted in higher income and capital formation in agriculture.

It may however be noted that marginal and small farmers were as benefited as big farmers due to MSP.

4. The negative points were –

a) Due to increasing state intervention in marketing of paddy and wheat large quantities of these commodities got accumulated with the government needing heavy expenditure on handling storage and carry over.

b) The economic cost of the stocks of rice and wheat became enormous and these had to be marketed with heavy subsidies in national and international markets. This has been entailing quite heavy burden on govt. budget.

The government is thinking on reducing its intervention.

6.3 The Ways of Reducing State Intervention

1. Market charges need to be reduced so that the MSP can be reduced.
2. The MSPs have an increasing trend over last many years. These can be controlled by freezing the MSPs as the current level.
3. The farmers may be encouraged to grow crops other than paddy and wheat and develop alternative production system so that the governments burden on procurement is reduced.
4. Instead of growing common varieties of paddy and wheat which are procured by government at MSP the farmers should be encouraged to superior/ five varieties due to which farmers would fetch higher prices in the open market thereby lessening the burden of the government.
5. Involve Private Trade in marketing by reducing the MSPs.

6.4 state Intervention has to be withdrawn in phases

It may be noted that immediate or withdrawal of State intervention in one stroke would prove harmful. This should be done meticulously planned and that too in phases.

It is necessary to see that the cost incurred in intervention is reduced. The intervention should limit its goal to facilitate all the parties in the market than having control over the marketing system.

6.5 The Present State of Markets in Madhya Pradesh

The MSPs of paddy and wheat have been effectively implemented in Madhya Pradesh. No farmer has to travel very far to sell wheat and paddy. All the markets are regulated. The Govt. of India announces the procurement price for these crops on the recommendations of the Commission on Agricultural Costs and Prices (CACP) and the govt. of India directs the different Central and State procurement agencies to procure the produce at the procurement price. There are no regional variations in the implementation of the price policy in the state as these agencies procure the produce based on fair average quality basis. Almost all the paddy and wheat brought by the farmers in the market is lifted by the procurement agencies at MSP. This means that MSP is effectively implemented all over the state. Majority of farmers are aware of the MSP for paddy and wheat.

The suggestions for shifting of area of paddy and wheat are not finding farmers' favour due to marketing problems of other crops. The growers are reluctant to cultivate other crops because these do not fit in the present crops system, less profitable, risk involved and perishable nature of the products.

Increasing MSP and assured procurement have narrowed down the gap between MSP and wholesale and farm harvest prices.

Though considerable costs are involved in the present state of market intervention there is no dispute over the continuation of state intervention. It is needed in the developing country like India.

6.6 Policy Implications

1. The quantities of paddy and wheat purchased by government agencies has been increasing from year to year. Due to easy availability of purchasing agencies farmers have stuck to paddy- wheat cultivation and have not adopted other crops. The government, therefore, should try to canvass for other crops and for superior varieties of paddy and wheat which would felth the farmers higher price and lessen the burden on procurement machinery.

2. The storages of paddy and wheat are mainly owned by government agencies. To reduce the state intervention the government should encourage individual farmers storages.

3. To reduce the cost of marketing and there by reduce the MSP it is suggested that cost of transport, loading and unloading, cleaning, weighing etc. should be lessened.

4. The withdrawal state intervention should be meticulously planned and should be done in phases. Sudden, total and withdrawal in one stroke would do more harm than good.

5. The government agricultural extension services should make intensive effort and show by conducting crop demonstrations the profitability of alternative crop combinations and suitable and better crop varieties that would be acceptable in national and international markets.

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CHAPTER VII

SUMMARY AND CONCLUSIONS

7.1 The present day agricultural marketing involves all the activities required in moving agricultural products from producers to the final consumers .It includes activities like assembling, grading, processing, transportation, handling, financing, risk bearing, wholesaling, retailing, etc.

The state intervention is an organized attempt to rearrange the mobilization and distribution of social resources via market place. These are of three types.

(i) Expanding range of direct mercantile activities, such as state trading in food grains and public distribution of foodgrains.

(ii) Financial interventions like commercial taxation, controls on use of formal credit for speculation on stocks which is an indirect intervention.

(iii) Regulated marketing.

The agricultural price policy and marketing system in vogue includes Fixation of minimum support prices, procurement, buffer stocking and public distribution of cereals and fixation of central issue price for these, open market operations by public or cooperative agencies etc.

In the case of rice and wheat, the farm harvest prices ruled lower than the MSPs during the last 3-4 years, even in some relatively agriculturally less developed states where procurement operations were not carried out by FCI.

Marketing efficiency denotes the effectiveness with which the structure of marketing performs the desired function of moving the farm products from producers to the final consumers.

An efficient marketing system has following characteristics

1. There should be fair trading practices and no restrictions on movement, storage and marketing of commodities.
2. Necessary market information and facilities (infrastructure) should be available.
3. Existence of reasonable prices for both producers and consumers.
4. The traders' margin should be low.

At present there is a large scale state intervention in foodgrains market, particularly in rice and wheat. A large amount of money is being used for procurement, buffer stocks operations and food subsidies. A stage has been reached when there is need for reduction of government involvement.The main purpose of agricultural price policy is to manage the food deficit in the economy.

The specific objectives of the study are as follows.

1. To examine the prevailing system of marketing of important agricultural commodities in the state of Madhya Pradesh.
2. To examine the role of government and non government agencies in procurement/ purchase, storage and marketing of different commodities.
3. To examine deficiencies in factors impacting market efficiency, such as physical infrastructure, marker intelligence and trade practices (crops/crop group wise) in Madhya Pradesh and suggest measures to improve them.
4. To suggest measures to improve marketing efficiency.

7.1.1 Two crops, namely, paddy and wheat were selected as these were the most important cereals of the state from the point of view of area, production and marketing.

For two crops of paddy and wheat a district each was selected based on the highest area, production and yield. Accordingly Balaghat district was selected for paddy and Indore district was selected for wheat.

In the two districts of Balaghat and Indore two blocks each were selected. Thus in Balaghat district Balaghat and Waraseoni blocks were selected. Again, the mandis of these towns were selected for data on marketing. In Indore district Indore and Sanver blocks and the mandis located at these block headquarters were selected.

At the last stage of sampling the farmers had to be selected. As per the instructions of Coordinator of the study three villages in each of the two blocks of two districts were selected. Thus a total number of six villages were selected in each of the districts. In each village 10 farmers were selected so that the sample for a district comprised 60 farmers. Thus the total sample for the study was 120 farmers. For the selection of farmers in a village

farmers were grouped into five groups according to size of holdings. From each size group 2 farmers were selected to have 10 farmers per village.

For secondary data collection the reference years were 1980 onwards. For primary data the reference year was 2001-2002.

7.2 In Madhya Pradesh the area under paddy in 2000-2001 was 1,708 thousand hectares. In 1980-81it was 1,559.70 and in 1990-91 it was 1,556.00 thousand hectares. Thus the area in the last reference year increased by about 150 thousand hectares. The production of paddy in 2000-2001 was 982.00 thousand tonnes. It was 975.28 thousand tonnes in 1980-81 and 1,435.00 thousand tonnes in 1990-91. One clear reason for highest production in 1990-91 was the highest yield in that year.

Balaghat which is mainly paddy growing district witnessed increasing area under paddy from 1980-81 to 1990-91and further to 2000-2001. The production of paddy on the other hand declined from one reference year to the next reference year and stood at 209.40 thousand tonnes in 2000-2001. The reason for decreasing production inspite of increasing area was clearly due to decreasing yield from one reference to another. The yield was 1,478 kg. per hectare in 1980-81, 1,324 kg. per hectare in 1990-91 and 894 kg. per hectare in 2000-2001.Indore district was famous for wheat and it was observed that the yields of wheat in the district in all the three reference years were higher than the state average.

The total production of paddy in Madhya Pradesh in the year 2001-02 was 1,664 thousand tonnes. It was 1,750 thousand tonnes in 1999-2000 and 982 thousand tonnes in 2000-2001. As regards arrivals it was noted that in 2001-2002 the arrivals were 634 thousand tonnes. These were 448 thousand tonnes in 1999-2000 and 423 thousand tonnes in 2000-2001. It was also noted that of the total production 38.00 per cent arrived in the markets in 2001-2002. In 2000-2001 the percentage was 43.00 and in 1999-2000 it was only 26.00. Not entire quantity arriving in the market was procured by the government agencies. In 2001-2002, 42.00 per cent of the arrivals were procured. In 2000-2001 the percentage was lower (28.00) and was least in (18.00) 1999-2000. Thus it will be noted that the proportion of quantity procured to quantity arrived increased from year to year.

In the case of wheat the total production was 8,687 thousand tonnes 1999-2000. It suddenly decreased to 4,869 thousand tonnes in 2000-2001. In 2001-2002, however, it increased to 5,362 thousand tonnes. It was noted that the percentage of quantity arrived to production was 27.00 in 1999-2000. It shot up to 57.00 per cent in 2000-2001. However it decreased to 37.00 per cent in 2001-2002. The procurement was 24.00 per cent of the arrivals in 1999-2000. In the two subsequent years the percentage went down to 13.00 and 16.00 per cent respectively. It may therefore be said that progress of procurement has been much better in the case of paddy than wheat in three reference years.

In Balaghat district the production of paddy was 333.3 thousand tonnes 1999-2000. It dropped to 209.4 thousand tonnes in 2000-2001. However it again increased to 358.2 thousand tonnes in 2001-2002. Both the arrivals and the procurement quantities increased from year to year. The arrivals in 2001-2002 were 149.10 thousand tonnes and procurement was 52.39 thousand tonnes. There was no trend as regards percentage of arrivals to production. However the percentage of procurement to arrivals increased from 10.81 in 1999-2000 to 22.09 in 2000-2001 and further to 35.14 in 2001-2002. Thus the procurement of paddy was quite satisfactory in the district.

In Indore district the production of wheat was 283.1 thousand tonnes 1999-2000. In the year 2000-2001 the production suddenly decreased to 87.3 thousand tonnes. In the last reference year, however, the production recovered and was 115.9 thousand tonnes. There was no relationship between the quantities of arrivals and production. This is presumed to be due to the fact that in Indore district mandi wheat in good quantity is received from adjoining districts. Therefore in 2000-2001 the arrivals were more (173.50 thousand tonnes) than the production (87.3 thousand tonnes). Another notable feature was that wheat was not procured in Indore district mandis in both the years 2000-2001 and 2001-2002. This might be due to the fact that there was enough wheat quantity stored in the godown of the district compelling the officials not to procure any wheat in the two reference years.

7.3 Data on storage facilities was available for the ten year period from 1983-84 to 1992-93. It was noted that in general the storage capacity of all the four kinds of storages increased during the reference period. In Balaghat district in 1992-93 the total capacity was 79,783 tonnes. This capacity comprised mainly of FCI godowns which contributed 55.80 per cent, the SWC godowns contributed 22.23 per cent of the total capacity and appex godowns, 14.41 per cent.

In Indore district the total capacity in 1992-93 was 2,49,020 tonnes. Of this SWC godowns formed 46.41 per cent capacity and CWC godown formed 29.12 per cent. The FCI godowns formed 16.84 per cent and apex godowns the remaining 7.63 per cent.

7.3.1 In Indore district the network of roads both kuchcha and pucca was far better than Balaghat district.

7.3.2 In Balaghat district paddy was the most important crop occupying 73.09 per cent of the cropped area in the year 2001-2002. It is observed that the percentage of area under paddy, in general, increased from year to year. On the other hand the percentage of area under wheat generally decreased during the last ten years. The percentage of area under pulses also declined generally. Among oilseeds only linseed was important but the percentage of area under this crop showed a declining trend. Other crops were not of any significant importance.

In Indore district wheat was the most important cereal occupying 20.92 per cent of the gross cropped area in 2001-2002. It was however, noted that the percentage of area under this crop slightly declined since the year 1993-94 with many fluctuations in between. The other important crop was gram and its percentage in the gross cropped area stood at 10.45 in the year 2001-2002. There was a slight decline in the percentage since 1996-97. Soybean was the chief commercial oilseed and occupied 54.99 per cent of the gross cropped area in 2001-2002. It was also noted that the percentage of this crop declined abruptly from 2000-2001 (63.00 per cent) to 54.99 per cent in 2001-2002. This might be due to lower price offered for the crop due to lower exports.

7.3.3 Paddy crop in Madhya Pradesh gets irrigation from canals and tanks. It was noted that in Balaghat district canals irrigated as high as 57.32 per cent of the irrigated area. Tanks were the second important sources and contributed 23.01 per cent of total irrigated area. Wells were comparatively less important sources and the contribution to irrigated area was 15.28 per cent. It was also noted that the percentage of irrigated area by canals increased generally from 1992-93 to 1996-97. Thereafter it slightly declined till the last reference year 2002-2003. The percentage of irrigated area by tanks did not show any trend as such. On the other hand the percentage of irrigated area by wells increased from year to year i.e. from 1992-93 to 2002-2003.

In Indore district tubewells were the most important sources of irrigation and contributed as high as 82.96 per cent of the irrigated area of the district. The percentage of irrigation by tubewells generally increased from year to year i.e.1992-93 to 2002-2003 with small fluctuations between the beginning and end of the reference years. Open wells formed 7.30 per cent of the total irrigated area. However the percentage of area under these sources declined gradually from year to year. Other sources such as stop dams and pumps fitted on rivers, nalas etc. gained importance in the percentage of irrigated area since 1999-2000.

7.3.4 The production of paddy in Balaghat district in 1997-98 was 257.7 thousand tonnes. It generally increased from year to year with some fluctuations so that in 2001-2002 it was 358.2 thousand tonnes. Arrivals also generally increased from year to year and were 87.9 thousand tonnes in 1997-98 and 149.1 thousand tonnes in 2001-2002. The figures for procurement were not available for the first two years of the reference period. In 1999-2000 the procurement was 11.81 thousand tonnes and increased from year to year to be 52.39 thousand tonnes in 2001-2002. Since both production and arrivals did not show any definite relation, the percentage of arrivals to production fluctuated from year to year. However the percentage of procurement to arrivals increased from year to year and was 10.81 in 1999-2000 and 35.14 in 2001-2002.

In Indore district the production of wheat and arrivals of wheat did not show any trend during the reference years. Therefore there was no trend in percentage of arrivals to production. The data for procurement was very scanty, as a matter of fact no procurement was done in the two years of 2000-2001 and 2001-2002. Therefore no relation could be established between the percentage of procurement to arrivals.

7.3.5 Data on arrivals and prices were noted for mandis in the selected districts. In Balaghat district the data were collected for two mandis of Waraseoni and Balaghat for paddy. In Indore district data for wheat were noted for Indore and Sanver mandis. The data were collected for three years 1999-2000, 2000-2001 and 2001-2002.

In Waraseoni mandi of Balaghat district the arrivals of paddy were more in the months of November, December, January and February. The arrivals started diminishing from March and were lesser in the months of July to October. The trend was similar in all

the three years. The prices, on the other hand, were least in the months of November, December, January and February. These were comparatively higher during the months August to October. It is thus clear that with the increase in arrivals the prices decreased and with decrease in arrivals prices started soaring .

In Balaghat mandi of the same district the arrivals of paddy were generally higher during the months of November, December, January and February. These incidentally include harvest and post harvest seasons. The phenomenon was similar in all the three reference years of 1999-2000, 2000-2001 and 2001-2002. The arrivals were lesser during the months of July, August, September and October. This phenomenon was noted for all the reference years. The prices, on the other hand, were least in the harvest and post harvest months of November, December, January and February. Thus in Balaghat mandi also the prices of paddy were least during the harvest and post harvest months and increased thereafter and were highest in the months of September and October.

In Indore district in the case of Indore mandi the arrivals were higher in the months of March, April, May and June. These started declining from July onwards. The prices of wheat were lower in the harvest and post harvest months.

In Sanver mandi also wheat arrivals were higher in the months of March, April, May and June. The prices of wheat, on the other hand, were least in these months. The prices increased with the declining arrivals of wheat.

Thus in both the districts for two markets each the arrivals were higher in harvest and post harvest seasons. Inversely, the prices were lower in those seasons. As the arrivals started decreasing the prices increased. This was true for both the crops of paddy and wheat.

7.4 In Balaghat district the overall average size of holdings was 3.53 hectare. Leased in activity was prevalent only in the marginal size group with an average size of 0.02 hectare. Leased out activity was not practiced in any size group. The average size of operational holdings was 0.69, 1.57, 2.96, 4.59 and 7.86 in semi-medium, medium and large farms respectively.

Out of the gross cropped area of 304.43 hectares, more than 84 per cent was devoted to staple food crops, viz., paddy and wheat, while other crops shared only 16 per cent of area.

In all the size groups more than 79 per cent of the GCA was devoted to staple food crops. Rest of the crops namely: gram, maize, linseed, kulthi, mustard, vegetables and others were grown on 14 to 20 per cent of GCA .

The average productivity of paddy and wheat was 23.18 qtls. and 12.42 qtls. per ha respectively. Yield of maize and jowar was 20.44 qtls. and 20.00 qtls per ha respectively. Yield of gram, kulthi and arhar were at 10.40 qtls., 6.00 qtls. and 10.86 qtls. per hectare respectively. Among oilseeds, yield of mustard and linseed was at 8.00 qtls and 4.53 qtls per ha. respectively.

Major assets, like tractors and trolleys, were non-existent on marginal, small and semi-medium farms. The ownership of tractors and trolleys increased with the increase in size of farms. However, the number of tractors and trolleys was 0.08 and 0.08 per farm. As far the ownership of bullock carts and tube wells / pump sets were concerned, the data revealed that it increased with the increase of farm size. It was 0.77 and 0.43 per farm respectively. The ownership of sprinklers was non-existence in marginal and small farm size groups. It was 0.07 per farm.

The average value of tractors was Rs.23,083, for trolley it was Rs.4,417, for bullock cart Rs.3,978, for sprinkler Rs. 1,025, for tube well/ pump set Rs.25,217 and for thresher Rs.517.As regards the utilization pattern of paddy, out of the total production of 82.05 qtls per farm 17.96 per cent was utilized for home consumption, 4.88 per cent for seed, 6.25 per cent for payment of wages and 70.91 per cent was marketed. It is revealed that percentage of quantity consumed decreased with the increase in size of farms. The percentage of use on seed varied from 3.78 per cent to 7.36 per cent. It varied from 2.62 per cent to 10.26 per cent in the case of payment to the labourers. The percentage of quantity marketed increased with the increase in farm sizes from 50.25 to 78.89.

7.4.2 In Indore district the average operated area per farm was 3.79 hectares. Of this 85.75 per cent was irrigated and 14.25 per cent was un irrigated. Of the total operated area per farm 3.72 hectares was owned and 0.07 hectares was leased. None of the farmers leased out his land. The average size of operational holding was 0.94, 1.55, 2.64, 4.88, and 8.97 hectares on marginal, small, semi-medium, medium and large farms respectively. The leased in land area was only on marginal and medium size groups, with average leased in land of 0.15 hectare

unirrigated land and 0.21 hectare irrigated land on the respective farm size groups. The proportion of leased in area in the total operated area, was 15.96 and 4.30 per cent on marginal and medium size farms respectively. The irrigated operated area among size groups showed 94.47 per cent in medium size farms and minimum of 74.47 per cent on marginal size farms.

Wheat, gram and soybean were important crops. The area under by these three crops constituted 92.51 per cent of the gross cropped area. Wheat occupied 32.34 per cent, gram 7.95 per cent and soybean, 52.22 per cent. The other crops worth mentioning were maize, jowar, and arhar. More than 84 per cent of the gross cropped area was under soybean and wheat.

The productivity of wheat and soybean was 19.80 qtls. and 10.78 qtls per hectare respectively. Yield of maize and jowar were recorded at 10.29 qtls per hectare and 6.25 qtls. per hectare respectively. Among pulse crops gram and arhar had productivity13.48 qtls and 15.30 qtls per hectare respectively. It revealed that wheat production per hectare was maximum (22.32) in large size group followed by 21.95, 18.61, 17.64 and 12.43 Qtls per hectare on semi-medium, small, medium and marginal farms, respectively. Soybean production per hectare was maximum (12.27) in small size group followed by 11.95, 10.62, 10.27 and 8.65 Qtls per on medium, large, marginal and semi medium farms respectively.

Distribution of agricultural assets, like tractors and trolleys, were non existent on marginal size farms. The ownership of tractors and trolleys increased with the increase in size of farms. So far as the ownership of bullock carts, tube wells/ pump sets and others were concerned it was 0.62 and 2.27 and 0.90 per farm.

The average value of agricultural assets was estimated at Rs.82,067 for tractors, Rs.19,600 for trolley, Rs.3,650 for bullock cart, Rs.46,267 for tube well/ pump set and Rs.14,363 for other assets.

It was noted that out of total production of 35.77 quintals per farm 9.14 per cent was utilized for seed, 1.71 per cent was paid as wages, and 89.10 per cent was marketed. The percentage of produce used as seed with the increase of farm size except in the case of semi medium and medium farms where it decreased. It varied from 1.72 per cent to 2.22 per cent in the case of disposal of produce for the payment as wages. There was no relationship of percentage of marketed surplus and size group.

Out of the production of 41.79 quintals of wheat per farm, 21.85 per cent was utilized for home consumption and 61.33 per cent was marketed. Again 9.26 per cent and 4.81 per cent was utilized for seed and for wages to the labourers. The percentage share of produce consumed at home decreased with the size except on medium farms. The percentage of produce marketed increased with the increase of farm size.

7.4.3 In Balaghat district as regards problems of transport only eight out of sixty (13.33 per cent) farmers complained about transport problem. Similarly only ten out of sixty farmers (16.67 per cent) opined that the rates of transport were higher. As many as fifty five out of sixty (91.67 per cent) farmers said that transport was easily available. None of the farmers presented any problem regarding loading/ unloading. Thirty three out of sixty (55.00 per cent) farmers said that cleaning operations were done timely .

The weighment problem had two aspects. Firstly due to shortage in weighment, deduction in payment was made. Secondly along with shortage in weighment disproportionate reduction in price was made. While in the cases of all the selected farmers weighment was done timely only two out of sixty farmers (3.33 per cent) to complained regarding arbitrary deduction in price. As many as twenty four out of sixty (40.00 per cent) farmers complained that deduction in price was done in the name of lower quality.

In the main process of auction farmers had nothing to complain. None of the selected farmers had anything to say regarding arbitrary grading or price discrimination. However twenty five out of sixty farmers (41.67 per cent) complained that some produce is taken away in the name of sample.

All the farmers were satisfied with regard to space available to exhibit the produce, space for parking of vehicles and staying arrangement.

In Indore district like in Balaghat district eight out of sixty farmers (13.33 per cent) had transport problem. Nearly half of the farmers opined that the rates of transport were higher. However 47 out of sixty farmers (78.33 per cent) said that transport was easily available. Loading/ unloading was stated to be done timely in all the cases. As many as fifty seven farmers (95.00 per cent) could get cleaning / grading of their produce done timely.

Like in Balaghat district none of the farmers had any thing to complain with regard to payment and all of them got the payment immediately. With regard to weighment except one

farmer (1.67 per cent) all the farmers got the weighment done timely. As many as fifty six out of sixty farmers (93.33 per cent) stated that there was no incidence of arbitrary reduction in price. In the case of reduction due to lower quality as in Balaghat district nearly half of the farmers told that price reduction was done due to lower quality.

All the farmers narrated that auction of their produce was done timely. Ten per cent of the farmers complained of arbitrary grading and price discrimination. Again 43 out of 60 farmers commented that some quantity was taken away as sample.

In Indore district like in Balaghat district eight out of sixty farmers (13.33 per cent) had transport problem. Nearly half of the farmers opined that the rates of transport were higher. However 47 out of sixty farmers (78.33 per cent) said that transport was easily available.

Loading/ unloading was stated to be done timely in all the cases. As many as fifty seven farmers (95.00 per cent) could get cleaning / grading of their produce done timely.

Like in Balaghat district none of the farmers had any thing to complain with regard to payment and all of them got the payment immediately.

With regard to weighment except one farmer (1.67 per cent) all the farmers got the weighment done timely. As many as fifty six out of sixty farmers (93.33 per cent) stated that there was no incidence of arbitrary reduction in price. In the case of reduction due to lower quality as in Balaghat district nearly half of the farmers told that price reduction was done due to lower quality.

With regard to market yard except one farmer all the others were satisfied with the space available to exhibit the produce and to park the vehicles. Except seven out of sixty farmers (11.67 per cent) were satisfied with the staying, arrangement.

7.5.1 In Balaghat district the per farm production of paddy was 82.05 quintals. Of this quantity 70.91 per cent was marketed. The percentage of quantity marketed increased with the increase in size of holdings.

In the case of wheat in Indore district the production per farm was 41.79 quintals. Of this quantity 25.63 quintals or 61.33 per cent was marketed. It was noted that the percentage of quantity marketed to quantity produce was higher on the larger farms.

7.5.2 In Balaghat district, of the total quantity of 58.18 quintals of paddy per farm more than 95 per cent (96.72) was sold to government agencies and only 3.28 per cent was sold to private traders. In the marginal size group the percentage of quantity sold to government agencies was 97.94. In the semi medium size group the percentage of quantity sold to govt. agencies was 79.21. In the remaining size groups of small, medium and large the entire quantity was sold to govt. agencies only .

As regards sale of wheat in Indore district it was noted that 97.35 per cent of the produce was sold to government agencies and the remaining quantity (2.65 per cent) was sold to the private traders. In the case of large farmers the entire quantity was sold to government agencies. There was no significant relationship between the size of holdings and the percentage of produce sold to the government agencies. The marketed surplus per farm increased with the size of holdings.

7.5.3 The farmers' opinions about sales to government agencies were noted. On all counts, such as better price, quick disposal, correct weighing, immediate payment and help in purchase the government agencies proved to have impressed the selected farmers. It was noted that all the farmers preferred to sell the produce to government agencies because of better price.The other impressive reason was correct weighment. Quick disposal and immediate payment were third and fourth important reasons.

In the case of wheat in Indore district similar opinions were expressed by the selected farmers. Farmers put better price as the first important reason. The second important reason for them was quick disposal. The third reason was immediate payment and the fourth one was correct weighment. The farmers' choice of reasons was similar in different size group with some variation .

7.5.4 The main agencies purchasing the produce were village traders, traders in local markets, traders in wholesale markets and government agencies. The difficulties faced by farmers in selling to different agencies were somewhat similar but at times peculiar to the concerned agencies.

In Balaghat district the most common difficulty faced in selling to village traders was that the village traders offered lower price. The second important reason was uncertainty in the traders purchasing capacity. The most important difficulty in selling the produce in the local market was again offering of lower prices by the traders. The second important reason was that the payment to the farmers was effected only after selling of the stock by the traders. In the case of sale in wholesale market the reason was that the prices fetched were quite lower. The second reason was that the traders in the wholesale market being wholesale traders were not interested in the purchase of small quantities.

In the case of wheat selling farmers of Indore district the main difficulty faced in selling to the village trader was lower price offered. The second reason was uncertainty in selling and the third reason was the delayed payment as the village traders preferred to make the payment only after disposal of the produce with them. In the case of local market again the main difficulty was offering of lower price. The second important reason was uncertainty in selling and the third reason was delayed payment. In the case of sale in the wholesale market the main reason was the delayed payment. The second important reason was uncertainty in selling.In the case of sale in the wholsale market the main reason was delayed payment.

The second important reason was that the traders in the wholesale market showed no interest in the purchase of the smaller quantities. The third reason was the offering of lower prices by the traders. As far as sale to the government agency the main problem related to the time. The second important reason was problem of transportation as the purchase centres were not located in the remote and interior areas of the district. The fourth reason was that the farmers some times did not know whether on a particular day the purchase would be made.

7.5.5 In agriculture like any other industry research findings on various aspects of crop production are disseminated by the scientists. At the field level the information on these is given to the farmers by agricultural extension officers posted in the district and level below. They visit villages and organize meetings of farmers to impart technological knowledge in agriculture to the farmers. Besides extension officials the knowledgeable persons like village sarpanch, village teacher and gram sevak also gave the information to the farmers. Audio visual aids like radio and T.V. play important role.

In Balaghat district the most important source was block authorities who were responsible to the extent of 88.33 per cent of the selected farmers in giving the information. Village sarpanch and neighbourers disseminated the knowledge to 51.67 per cent each. The different agencies which canvass the inputs in the agriculture helped in giving knowledge to 50.00 per cent of the farmers.

In Indore district also the most important source of information was block authorities who gave technical knowledge to 81.67 per cent of the selected farmers. The next important source was neighbourers who helped in giving knowledge to 61.67 per cent of the farmers. Village sarpanch provided information to 45.00 per cent of the selected farmers and inputs supplying agencies gave knowledge to 36.67 per cent of the selected farmers.

7.6.1 The state intervention is through restrictions on marketing, storage and movement of grains and fixation of minimum support prices, storage and distribution on public account. The restrictions on marketing were put by regulation of markets. This was done with a view to protect the farmers from exploitation of traders.

The farmers were benefitted by state intervention in marketing as they were protected from exploitation. They also got higher price than the market price and whatever they produced was procured by government agencies. Increasing MSP from year to year and assured procurement have narrowed the gap between MSP and wholesale and farm harvest prices. Income of the farmers has increased and this has resulted in higher income and capital formation in agriculture.

The negative points of state intervention were –

(a) Due to increasing state intervention in marketing of paddy and wheat large quantities of these commodities got accumulated with the government needing heavy expenditure on handling storage and carry over.

(b) The economic cost of the stocks of rice and wheat became enormous and these had to be marketed with heavy subsidies in national and international markets. This has been entailing quite heavy burden on govt. budget.

The state intervention can be reduced by:-

(1) Market charges need to be reduced so that the MSP can be reduced.

(2) The MSPs have an increasing trend over last many years. These can be controlled by freezing the MSPs as the current level.

(3) The farmers may be encouraged to grow crops other than paddy and wheat and develop alternative production system so that the governments burden on procurement is reduced.

It may be noted that immediate or withdrawal of State intervention in one stroke would prove harmful. This should be done meticulously planned and that too in phases.

It is necessary to see that the cost incurred in intervention is reduced. The intervention should limit its goal to facilitate all the parties in the market than having control over the marketing system.

7.6.2 Policy Implications are :

1.The quantities of paddy and wheat purchased by government agencies has been increasing from year to year. Due to easy availability of purchasing agencies farmers have stuck to paddy- wheat cultivation and have not adopted other crops. The government, therefore, should try to canvass for other crops and for superior varieties of paddy and wheat which would felth the farmers higher price and lessen the burden on procurement machinery.

2. The withdrawal state intervention should be meticulously planned and should be done in phases. Sudden, total and withdrawal in one stroke would do more harm than good.

3. The government agricultural extension services should make intensive effort and show by conducting crop demonstrations the profitability of alternative crop combinations and suitable and better crop varieties that would be acceptable in national and international markets.

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